THE CANADIAN SPACE AGENCY

2008-2009 Estimates

REPORT ON PLANS AND PRIORITIES

Minister of Industry

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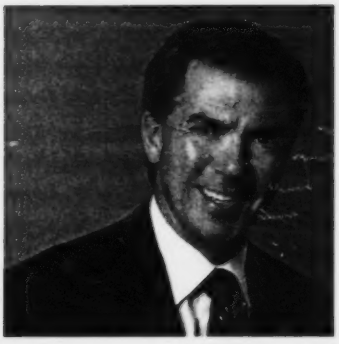
SECTION 1: OVERVIEW

1.1 MINISTER'S MESSAGE



The Government of Canada is committed to creating an environment where all Canadians have every opportunity for continued prosperity.

We laid out our long-term economic plan in *Advantage Canada.* It identified five Canadian objectives, related to tax reduction, debt reduction, entrepreneurship, knowledge in the workforce and infrastructure, which will help us improve our quality of life and succeed on the world stage. I'm pleased to note the commonality between these advantages and Industry Canada's mission of fostering a growing, competitive, knowledge-based economy.

Clearly, our government is making strides towards achieving our long-term goals. For example, we have provided $190 billion in broad-based tax relief over this and the next five years, including cuts to corporate, small business and personal taxes. Our debt repayment goals have been accelerated by three years. We're setting the right conditions for entrepreneurs to thrive, for research and development to flourish, for additional competition and growth in the wireless sector and for our workforce to build on its expertise. Finally, we continue to invest heavily in our physical infrastructure to build the networks needed to carry our people, goods and services across Canada and beyond.

In May 2007 Prime Minister Harper unveiled our Science and Technology Strategy, *Mobilizing Science and Technology to Canada's Advantage*. It is a policy framework that has received wide acclaim, both in Canada and internationally. Our government believes that science and technology, and research and development, are more critical than ever to pushing forward the frontiers of knowledge and transforming that knowledge into new products, services and technologies.

Our hard work is paying off. The economic fundamentals are in place to help us realize our goals. We boast strong public finances, an economy that is as healthy as it has been for a generation and low unemployment.

As Minister of Industry, I look forward to implementing our government's agenda for providing effective economic leadership — an agenda that provides concrete, realistic solutions to the economic challenges our country is facing.

As always, we must build on our success as a nation. In this regard, Industry Canada and its portfolio partners continue to strive towards a fair, efficient and competitive marketplace, an innovative economy, competitive industries and sustainable communities — in short, outcomes that will help Canadians continue to enjoy a quality of life that is second to none.

It gives me great pleasure to present the annual *Report on Plans and Priorities* for the Canadian Space Agency, outlining in greater detail the Agency's main initiatives, priorities and expected outcomes for the upcoming year.

Jim Prentice
Minister of Industry

1.2 MANAGEMENT REPRESENTATION STATEMENT

I submit, for tabling in Parliament, the 2008-2009 Report on Plans and Priorities (RPP) for the Canadian Space Agency.

This document has been prepared based on the reporting principles contained in the *Guide to the Preparation of Part III of the 2008-2009 Estimates – Reports on Plans and Priorities.*

- It adheres to the specific reporting requirements outlined in the Treasury Board Secretariat (TBS) guidance;
- It is based on the department's Strategic Outcome and Program Activity Architecture (PAA) that was approved by Treasury Board;
- It presents consistent, comprehensive, balanced and reliable information;
- It provides a basis of accountability for the results achieved with the resources and authorities entrusted to it; and,
- It reports finances based on approved planned spending numbers from the TBS.

Name:

_____

President, Guy Bujold

1.3 SUMMARY INFORMATION

The mandate of the Agency is "*to promote the peaceful use and development of space, to advance the knowledge of space through science and to ensure that space science and technology provide social and economic benefits for Canadians.*"

The Canadian Space Agency (CSA) is achieving this mandate by implementing the Canadian Space Strategy (CSS) in co-operation with other government departments/agencies, industries, and universities, as well as international partners. In addition to delivering its own programs, the Canadian Space Agency is responsible for co-ordinating all federal civil space-related policies and programs pertaining to science and technology research, industrial development, and international co-operation.

To learn more about the mandate of the Canadian Space Agency, go to:
http://www.space.gc.ca/asc/eng/about/mission.asp

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	368.2	348.3	332.2
HUMAN (FTEs)	724.0	722.0	721.7

CANADIAN SPACE AGENCY STRATEGIC OUTCOME

Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.

PERFORMANCE INDICATORS

1. Canada's rank among all countries of the Organization for Economic Co-operation and Development (OECD) in terms of support for peaceful space-related R&D; the measurement will provide the list of CSA missions, looking 10 years into the future and identifying the following for each mission:
   - the role of the CSA (leader or partner); and,
   - the CSA's contribution (%) to the total mission budget.

2. Size of the scientific, industrial and government space community:
   - number of universities, companies and organizations involved;
   - number of people employed in space-related jobs; and,
   - number of corresponding FTEs in academia, industry and government (federal and provincial levels) in Canada.

3. Utilization index/access to space data by academia, industry, government and the general public;
   - number of organizations (that use/access);
   - number of researchers (who use/access);
   - number of federal and provincial employees (who use/access); and,
   - number of Canadians who access data and who use an average of more than five space-based services, for example, every day.

PRIORITY BY PROGRAM ACTIVITIES	TYPE
1- Space Based Earth Observation (EO) Develop and operationalize the use of Space Based Earth Observation for the benefit of Canadians.	Ongoing
2- Space Science and Exploration (SE) Understand the Solar System and the Universe, expand our knowledge on the constituent elements and origins of life, and strengthen a human presence in space.	Ongoing
3- Satellite Communications (SC) Provide all Canadians with the means to participate in and fully benefit from the global information age.	Ongoing
4- Generic Technological Activities (GTA) in support of EO, SE, and SC Provide leadership, co-ordination and support to EO, SE, and SC through activities that are generic.	Ongoing
5- Space Awareness and Learning (AL) Further public understanding and engagement with regards to space-related issues, ultimately leading to improve the scientific literacy of Canadians.	Ongoing
6- Internal Services Implement the government's commitment to modern public service in accordance with the Management Accountability Framework (MAF) expectations.	Ongoing

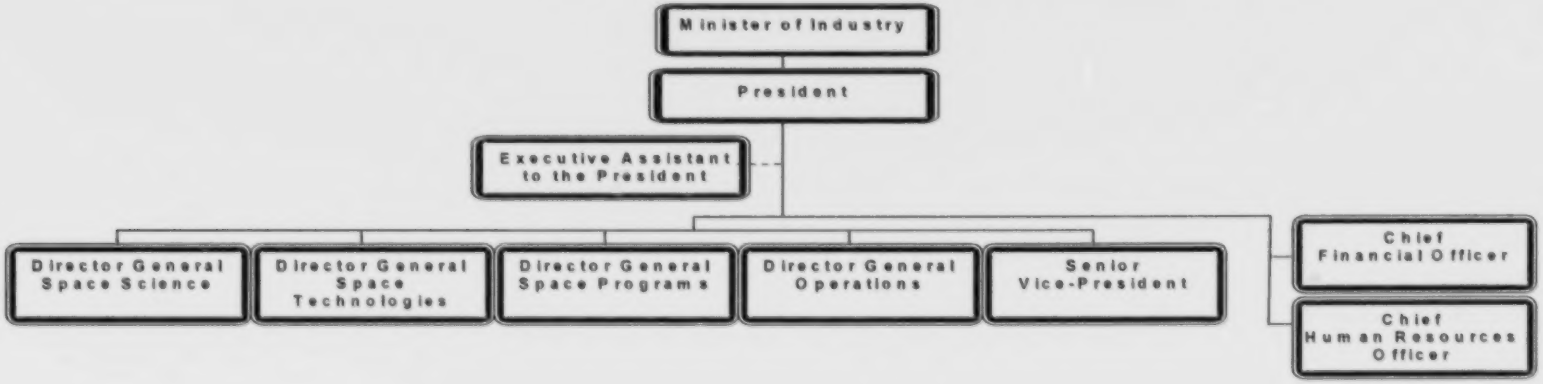
PROGRAM ACTIVITIES BY STRATEGIC OUTCOME

Canadian Space Agency Strategic Outcome: Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.

Program Activity	Expected Results	Planned Spending			Priority
		2008-2009	2009-2010	2010-2011	
Space Based Earth Observation (EO)	The benefits of activities of Earth Observation from space serve Canadian users in the areas of the environment, resource and land use management, and, security and sovereignty.	129.2	126.1	128.4	1
Space Science and Exploration (SE)	Participation in Canadian and international missions expands the scientific knowledge base made available to Canadian academia and R&D communities in the areas of astronomy, space exploration and solar-terrestrial relations, as well as in the physical and life sciences.	115.4	93.3	79.6	2
Satellite Communications (SC)	The systems and applications developed satisfy the needs of Canadians and of the Canadian government that are not being met by existing commercial systems and applications.	26.7	18.7	14.5	3
Generic Technological Activities (GTA) in support of EO, SE, and SC	Canada's industrial technological capabilities can meet the needs of future space missions and activities.	48.3	61.4	60.9	4
Space Awareness and Learning (AL)	Awareness of Canadians towards space is at targeted level.	7.9	8.9	8.8	5
Internal Services	Internal services provide an added value to CSA managers in the performance of their duties.	40.6	39.9	39.9	6

1.4 ORGANIZATIONAL INFORMATION

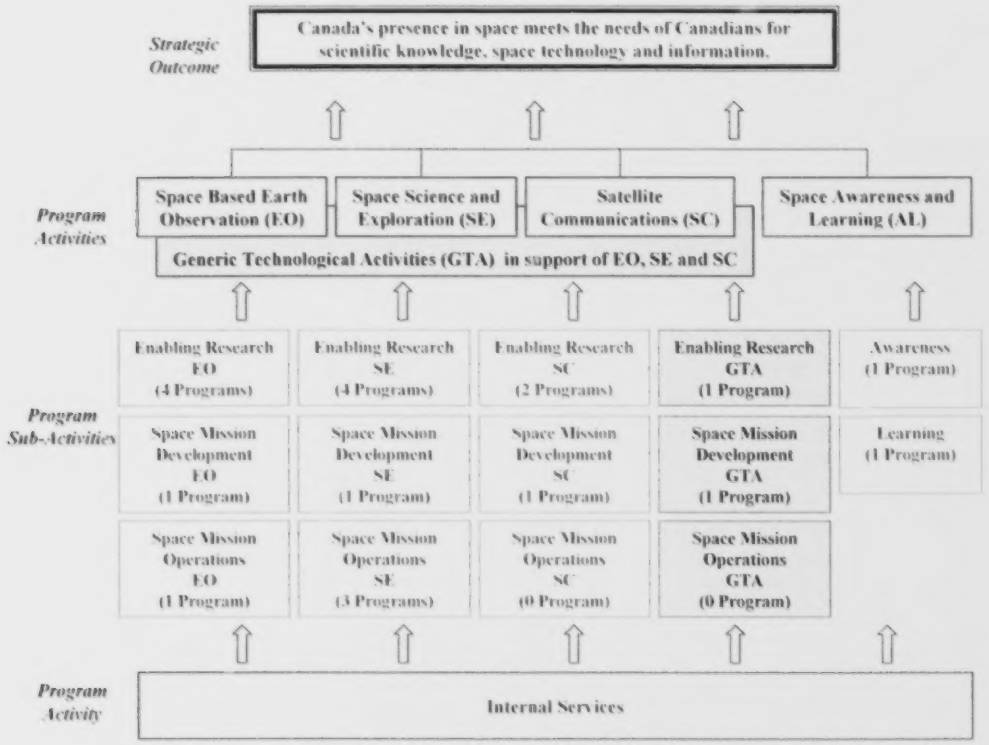
Reporting to the Minister of Industry, the Canadian Space Agency Chief Executive Officer is the President, assisted by the Executive Committee composed of the Senior Vice-President, the four Directors General (Space Science, Space Technologies, Space Programs, and Operations Branches) as well as the Chief Financial Officer and the Chief Human Resources Officer. The organizational chart below became effective as of May 15, 2007.



1.5 PROGRAM ACTIVITY ARCHITECTURE

The Canadian Space Agency manages its programs according to the Canadian Space Strategy approved by the Government of Canada in February 2005. The strategy greatly influenced decision-making at the CSA as it streamlined its strategic outcome and set the long-term priorities for all activities under the program activity architecture (PAA) since April 1, 2006.

To learn more about the Canadian Space Strategy, go to:
http://www.space.gc.ca/asc/eng/resources/publications/default.asp - strategy


Strategic Outcome
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Program Activities
Space Based Earth Observation (EO)
Space Science and Exploration (SE)
Satellite Communications (SC)
Space Awareness and Learning (AL)
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Program Sub-Activities
Enabling Research EO (4 Programs)
Enabling Research SE (4 Programs)
Enabling Research SC (2 Programs)
Enabling Research GTA (1 Program)
Awareness (1 Program)
Space Mission Development EO (1 Program)
Space Mission Development SE (1 Program)
Space Mission Development SC (1 Program)
Space Mission Development GTA (1 Program)
Learning (1 Program)
Space Mission Operations EO (1 Program)
Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Strategic Outcome

In 2007-2008, the CSA reviewed its program activity architecture (PAA). Starting in 2008-2009, all program activities contribute to a single strategic outcome: *Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology, and information.*

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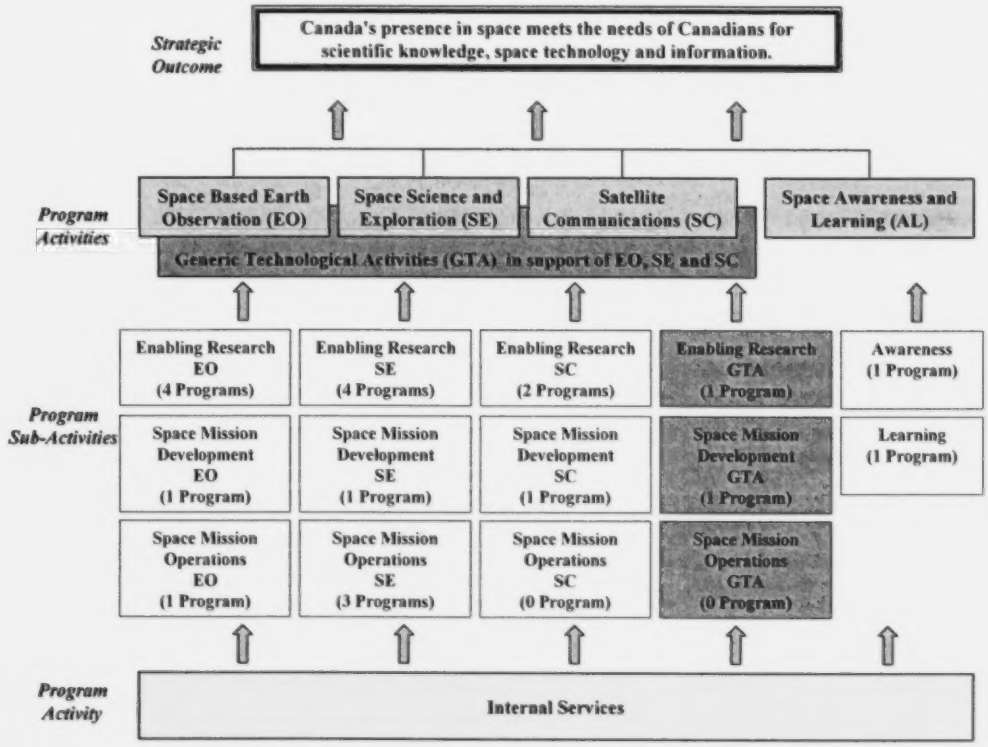
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Program Activity
Internal Services

Strategic Outcome

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Program Activities

The PAA is divided into six program activities. The first four are in line with the Canadian Space Strategy thrusts: *Space Based Earth Observation, Space Science and Exploration, Satellite Communications, and Space Awareness and Learning.* A fifth program activity, *Generic Technological Activities,* supports the three science and technology program activities. The *Internal Services* program activity supports all program activities.

Program Sub-Activities

Science and Technology program activities are broken down into three large clusters called sub-activities: Enabling Research, Space Mission Development, and Space Mission Operations. Each sub-activity carries out a specific objective, taking part in a project management continuum from initial research to final operational phases:

- Through *Enabling Research,* the CSA provides leadership, coordination and support for basic and applied research and experimental development in line with the CSA priorities and stakeholders' expectations in order to increase the knowledge base, devise new applications through space missions, and allow the transfer of intellectual property and proven technologies to Canadian industry, academia, and government organizations.

- Through *Space Mission Development,* the CSA provides coordination and support for the development of space missions in line with CSA priorities and stakeholders' expectations through the definition, critical design, manufacturing, integration, testing and delivery phases leading to launch and early operations of space systems.

- Through *Space Mission Operations,* the CSA provides coordination or support to the operations of space missions in line with the CSA priorities and stakeholders' expectations through the development and conduct of on-orbit operations, system maintenance and logistic support, as well as data handling and delivery.

The coordination of sub-activities throughout a project life cycle is meant to optimize the effectiveness and expertise of employees coming from different core functions and to promote an integrated team and a multi-functional approach to projects and services.

The Space Awareness and Learning program activity is broken down into two sub-activities, each with a specific objective:

- Through *Awareness* activities, the CSA increases public awareness and understanding of how Space Programs affect and improve the quality of life.

- Through *Learning* activities, the CSA directs a sustained, multi-dimensional, interactive learning program to build knowledge and enhance interest in space science and technology.

Together, these activities are part of a proactive strategy of communication, learning, and support for the development of professional expertise.

1.6 DEPARTMENTAL PLANS AND PRIORITIES

Strategic Context of the Canadian Space Agency

International Context

Space is recognized by industrialized nations as an essential and strategic tool to meet their social, economic, and foreign policy objectives. Accordingly, many governments around the world of traditional and emerging spacefaring nations are increasing their investments in space activities, looking for increased consolidation and advancement of their space capabilities. In terms of public expenditures in the space sector, Canada has been losing ground internationally. The ratio of public investment in space to national gross domestic product (GDP) is a telling illustration. The Government of Canada's financing of the space program in 2006 (0.021% of GDP) is less than a third of what it was in 1994 (0.068%).[1]

International co-operation is critical to the implementation of the Canadian Space Strategy (CSS). Working in partnership with other spacefaring nations, Canada can leverage its resources and maximize its return on investment, sharing technical expertise, knowledge, and infrastructure, and gaining access to areas where Canada has chosen not to invest due to limited resources. In addition, there are increasing concerns over issues such as space debris and climate change. These transcend national borders and favour increasing co-operation between nations with common goals. Canada's space infrastructure must not only meet national needs, but also play a tangible role in responding to issues of interest to the international community.

Canada is regarded as a reliable partner that possesses unique technical and scientific capabilities, and as a nation that can meaningfully contribute to the initiatives of foreign space agencies. In particular, emerging spacefaring countries in Asia and South America may offer great potential for future co-operation. Thus, Canada continues efforts to gain a foothold in these emerging markets. It is of paramount importance that the Canadian Space Agency continues its work with stakeholders to ensure the competitiveness of our research communities and industries with world markets.

Canada's space industry is perceived as internationally competitive. This was confirmed by the results of the 2006 Annual Survey of the Canadian Space Sector. With yearly revenues of $2.504 billion, where exports represent 44% ($1.103 billion)[2] of the industry's total revenues, Canada has a higher percentage of exports than any other major spacefaring nation. The main destinations of Canadian space exports are as follows: 45% to the U.S., 29% to Europe, and 12% to Asia.[3]

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[1] EUROCONSULT – CONFERENCE BOARD OF CANADA: *Socio-economic Study and Policy Analysis of Future Canadian Investments in Spaced-based Robotics Opportunities* (2006)
[2] State of the Canadian Space Sector 2006; Overall Revenues, Domestic v. Export Revenues
[3] State of the Canadian Space Sector 2006; Export Revenues

National Context

The Canadian Space Agency recognizes that the best means of turning scientific and technological advancements into innovative products and services is through partnerships with Canadian universities and industry. With its highly skilled workforce, the space industry in Canada not only generates wealth in our economy, but also provides Canadians with competitive products and services that would otherwise have to be obtained from foreign sources. Given that the national market is relatively small, it is critical that the Canadian space industry be able to leverage foreign investments and generate export sales. Capitalizing on export revenue depends on the industry's ability to commercialize highly competitive products and services, and establish local partnerships.

In 2006, Canada's space industry generated $2.504 billion in revenues.[4] Satellite Communications continued to generate the lion's share of the Canadian space sector's revenues with a total of $1.87 billion. A breakdown of the revenues by sectors of activity is as follows: Satellite Communications: 74.8% ($1.87 billion); Earth Observation: 10.9% ($273 million); Navigation: 5.3% ($132 million); Robotics: 4.5% ($113 million); Space Science: 4.0% ($100 million); and all space-related activities in areas other than those mentioned above: $12 million.[5] While small in number of firms, the Canadian space sector is knowledge-intensive and is at the forefront of research and innovation. Building on the strengths of 6,678 highly skilled workers,[6] Canadian firms have acquired world-leading capabilities in niche areas such as Earth observation, space robotics, satellite communications, and navigation.

Government Context

1- The Canadian Science and Technology Strategy

The CSA's mission is "to promote the peaceful use and development of space, to advance the knowledge of space through science and to ensure that space science and technology provide social and economic benefits for Canadians." It is aligned with the Government Science and Technology (S&T) Strategy and its main objective to "make Canada a world leader in science and technology and a key source of entrepreneurial and creativity".

In order for Canada to achieve this objective, the S&T Strategy identifies the following three underlining conditions for success: a strong private-sector commitment to S&T, a strengthened knowledge base and, be a magnet for talent which translate into: a Knowledge Advantage, a People Advantage, and an Entrepreneurial Advantage.

The S&T Strategy commitments are guided by four principles to which the CSA abides: Promoting world-class excellence; Focusing on priorities; Encouraging partnerships; and, Enhancing accountability. The table below depicts how the CSA aligns its strategic actions with these principles.

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[4] State of the Canadian Space Sector 2006; Overall Revenues
[5] State of the Canadian Space Sector 2006; Revenues by Sector of Activity
[6] State of the Canadian Space Sector 2006; Space Sector Workforce, Workforce Groups
http://www.space.gc.ca/asc/eng/industry/state.asp

CSA ACTIONS ALIGNED WITH THE S&T STRATEGY

By virtue of its mandate and the Canadian Space Strategy, the CSA has a role in fostering all three S&T advantages through its Program Activities:

- Earth Observation (EO): To develop and operationalize the use of space based Earth Observation for the benefit of Canadians. In doing so, maintain and expand Canada's leadership in EO science and technology;

- Space Science and Exploration (SE): To better understand the Solar System and the Universe; expand our knowledge on the constituent elements and origins of life; and strengthen a human presence in space. In doing so, sustain and increase Canada's contribution to humankind's scientific knowledge and advance supporting technologies;

- Satellite Communications (SC): To provide all Canadians with the means to participate and fully benefit from the global information age. In doing so, uphold Canada's status as a world leader in Satellite Communications;

- Generic Technological Activities (GTA): To provide leadership, coordination or support to EO, SE and SC programs through technological activities that are generic in their nature. In doing so, devise new space related applications and allow the transfer of intellectual property and proven technologies to Canadian industry, academia, and government organizations.

- Awareness and Learning (AL): To further public understanding and engagement with regards to space related issues. In doing so, improve the scientific literacy of Canadians.

While pursuing its Program Activity objectives, the CSA will finalize a strategic review of its program priorities in light of the S&T Strategy principles and the priority ranking framework of its Long Term Investment Plan.

To learn more about the Canadian Science and Technology Strategy, go to:
http://www.ic.gc.ca/epic/site/ic1.nsf/en/h_00231e.html

2- The Canadian Space Strategy

In keeping with its objective to be an open and transparent organization, the Canadian Space Strategy was developed in full consultation with Government of Canada organizations and Canadian stakeholders. It is the framework that guides all Canadian Space Agency programs and planning, and provides our stakeholders and partners with insight on Canada's strategic directions. The Canadian Space Strategy, though it preceded the S&T Strategy, embraces its principles of world-class excellence, a similar set of priorities and innovative national partnerships. The CSA implements the Canadian Space Strategy priorities through the following five CSS Building Blocks:

1) A strong science capacity.
2) A proficient technology base.
3) Dynamic space industry expanded markets.
4) National and international partnerships.
5) Qualified test and operations infrastructures.

1) Strong Science Capacity

Canada must possess the critical mass of intellectual capital to create and use knowledge. The increasing importance of space in our lives makes it imperative for our country to have a strong space science community capable of generating knowledge within our own borders, and be able to share and exchange knowledge with our international partners. In terms of concrete action, the plan for the CSA to contribute to a strong science capacity, consists of:

- encouraging the entry and emergence of new space science researchers in Canada, particularly through small, short-term projects;
- continuing to support researchers with the proven potential to become world leaders in their fields; and,
- stabilizing long-term support to a critical mass of the best research teams, particularly those in fields identified as Canadian priorities.

CSA partners in these actions are government granting councils (Natural Sciences and Engineering Research Council of Canada and the Canadian Institutes for Health Research), and other funding agencies such as the National Research Council Canada, and Industry Canada. Presently, the CSA works very closely with Canada's space R&D industry and with scientists in over 30 Canadian universities and 12 research centres.

2) Proficient Technology Base

Canada must have a core technology base to meet its unique requirements, as well as skills and capabilities to make it an appealing partner for other countries. Our technology base must take into consideration the niche sectors where Canada has established and intends to maintain world leadership, but must also be dynamic and innovative to evolve with the changing nature of our national needs and objectives in space, as influenced by national and international environments. Through a series of consultations, the Canadian Space Agency has developed a technology plan to guide the development of new technologies and define the key priority areas Canada should invest in. The Canadian Space Agency will promote and stimulate co-operation and complementary research among academic, industry, and government organizations when it supports government policy decisions coupled with the development of new technologies and products in Canadian industry.

To learn more about the Technology Plan, go to:
http://www.espace.gc.ca/asc/eng/industry/technology.asp

3) Dynamic Space Industry and Expanded Markets

The CSA recognizes that Canada's space industry must be sufficiently large and diverse to meet our needs and goals in space. Canada's space industry must also maintain the high calibre of products and services it has demonstrated to date. However, given that the Canadian market is relatively small, it is critical that the industry be able to leverage foreign investments and generate export sales in order to remain sustainable. Capitalizing

on export revenue depends on industry's ability to commercialize highly competitive products and services, as well as the Government of Canada's ability to preserve open trade relations with its closest international partners. In order to help the industry meet and succeed in these challenges, the CSA aligns its programs and actions to support technology and application R&D as well as innovation in industry in order to build synergies that will bolster Canadian industry's competitiveness and market development efforts.

To learn more about Canadian space-related organizations, go to the Canadian Space Directory: http://www3.space.gc.ca/asc/eng/industry/csd.asp

4) National and International Partnerships

Co-operation between scientists in government and academia; co-ordination between industry and the CSA to establish the most relevant technology base; and the alignment between R&D, hardware manufacturers and service providers, are among the many partnerships that must exist in Canada to ensure that we continue to have a dynamic national space program. Given the potential of space to provide applications directly related to the public good, one of the CSA's most important objectives is to accelerate the pace and depth at which Government of Canada departments and agencies use space science, technology and applications to help fulfill their mandates. To this end, the CSA's plan consists of:

- identifying new and existing government department needs and requirements in which space can make a positive contribution;
- developing the means to satisfy these needs in co-operation with Canadian industry and the academic community; and,
- harmonizing its investments and activities with those of client departments, academia, and industry as part of an integrated and user-oriented approach.

The CSA is creating partnerships related to the S&T Strategy areas of strength and opportunity by fostering the use of a wide range of space technologies by other government organizations, such as:

Satellite Communications: Industry Canada and Indian and Northern Affairs Canada

Environment: Environment Canada, Parks Canada, and the Canadian International Development Agency.

Resource Management: Natural Resources Canada, Fisheries and Oceans, and Agriculture and Agri-Food Canada

Security and Sovereignty: Department of National Defence, the Canadian Coast Guard, and Public Safety and Emergency Preparedness Canada

Science: National Research Council of Canada, Natural Sciences and Engineering Research Council, Canadian Institutes of Health Research, Health Canada, Environment Canada, Natural Resources Canada, and Department of National Defence.

International co-operation complements our domestic capabilities and strengthen relationships between Canada and foreign governments, scientists, and private sector organizations. The CSA will continue its efforts to strengthen strategic international partnerships of interest to Canada, and ensure that our national expertise, products and services make Canada a partner of choice for other nations and private entities. Canada co-operates with a number of international partners and has ties to various space agencies. Although the United States National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) remain Canada's longstanding international partners, we are developing increasingly productive relationships with space organizations in India, Sweden, Norway, Germany, Russia, Argentina, Italy, Japan, and China.

To learn more about Canada's international partners, go to:
http://www.space.gc.ca/asc/eng/resources/links_agencies.asp

5) Qualified Test and Operations Infrastructures

The David Florida Laboratory (DFL) provides world-class and cost-effective environmental space qualification services for the assembly, integration and testing of spacecraft systems and sub-systems to all of the Canadian Space Agency's programs. In order to maintain an appropriate level of space infrastructure, the CSA will encourage private-public partnerships to maximize the efficient utilization of the DFL facilities and equipment based in Canada, as well as increase their access to our international partners provided that Canadian interests and requirements are protected.

Access to other infrastructures is secured through international partnerships. For example, the CSA fulfills its responsibilities to the International Space Station (ISS) partnership through the provision of operational, training, logistical, support, and engineering services on the ISS Mobile Servicing System (MSS) and supporting hardware and software. This involvement provides access to a unique space laboratory for Canadian researchers and specialist astronauts, and ensures that Canada remains a partner of choice for future international endeavours.

To learn more about the David Florida Laboratory and the International Space Station, go to: http://www.space.gc.ca/asc/eng/dfl/default.asp and,
http://www.space.gc.ca/asc/eng/iss/default.asp

3- Results-Based Management: Integrating Results, Responsibilities, and Resources

In line with the enhanced accountability principle outlined in the S&T Strategy, the illustration below depicts how all PAA levels are linked and contribute ultimately to the CSA strategic outcome through a logical chain of results. Each PAA level is managed with traceable results, responsibilities, and resource information according to a planning and performance measurement timetable. Financial and performance information as well as management accountability are linked in corporate planning and reporting documents.

Integration of the Three "Rs" – Results-Responsibilities-Resources

PAA Levels	Results	Responsibilities	Resources
Strategic Outcome 10 years	Strategic Result	President- Executive Committee	10-year plan
Program Activities ≥ 5 years	Final Results	Executive Committee	10-year plan
Program Sub-Activities ≥ 3 years	Intermediate Results	Executive Committee	Annual Reference Level Update (ARLU)
Program Sub-Sub-Activities 3 years	Immediate Results	Directors General	ARLU
Program Sub-Sub-Activities 1 year	Inputs-Outputs	Managers	Main Estimates

In 2007-2008, the CSA completed its performance management framework for all levels of the PAA by developing Program Activity logic models from immediate results up to the strategic outcome. This exercise was based on the review of the CSA's three-year track record of PAA based performance measurement. In 2008-2009, the CSA will begin the implementation of a corporate results-based measurement strategy in order to fully deploy the performance management framework.

4- Integrated Corporate Human Resources Management

In June 2007, the CSA approved an Integrated Corporate Human Resources Plan to guide its human resources decisions over the next three years. This plan aims at ensuring that individuals with the appropriate competencies, knowledge and experience occupy appropriate positions in order to enable the CSA to achieve its objectives. An integrated HR plan helps create an attractive and diversified work environment in order to maintain a skilled and motivated workforce.

A workforce analysis demonstrates that CSA's workforce attained a degree of stability in 2005-2006 with a growth rate of 4.4% and a turnover rate of 3.2%. The workforce distribution by age showed that the average age of employees at the CSA is 42 years compared to 45 years in the federal public service. The analysis also revealed that 60% of the CSA's workforce has less than 10 years of service in the federal public service making the majority of CSA's workforce ineligible for retirement.

The Integrated Corporate Human Resources Plan identified strategies to address the following challenges:

- Organizational needs and recruitment;
- Management capacity;
- Competency-based management and succession development; and,
- Workplace well-being

5- Corporate Risk Management

In accordance with its commitment to integrate risk management into all decision-making processes, the CSA carries out a yearly process of corporate risk identification and assessment. The CSA will mitigate the four corporate risks of highest priority, namely in the areas of Values and Ethics, Workforce Competencies, Function/Process Integration, and Trust in CSA Governance. Furthermore, the CSA has implemented a sound project management capacity compliant with the Treasury Board project approval policy suite, which includes a project management governance structure and a risk management framework.

Priorities of the Canadian Space Agency under the Canadian Space Strategy

The CSA manages its programs according to the Canadian Space Strategy. The strategy is instrumental in decision-making at the CSA as it streamlines its strategic outcome and sets the long-term priorities for each of the four CSS thrust-related Program Activities and two supporting Program Activities. The release in 2007 of the Government's science and technology strategy – *Mobilizing Science and Technology to Canada's Advantage* – brings additional guidance in the assessment of the many initiatives that are under way or are being considered to meet these priorities.

Program Activity: Space Based Earth Observation (EO)

Priority: Develop and operationalize the use of space based Earth observation for the benefit of Canadians.

EXPECTED RESULT	PLANNED SPENDING ($ in millions)		
	2008-2009	2009-2010	2010-2011
The benefits of activities of Earth Observation from space serve Canadians users in the areas of the: ▪ environment; ▪ resource and land use management, and, ▪ security and sovereignty.	129.2	126.1	128.4

Main Initiatives for Space Based Earth Observation (EO)

Innovative space based Earth observation technologies are increasingly useful to Canada, which is internationally recognized for its advanced capabilities. For example, space based Earth observation enables monitoring of the environment with unparalleled coverage and scope, enhancing our forecasting capabilities and our understanding of environmental systems. Atmospheric science improves modeling of the atmosphere for weather prediction and analysis of the Earth's climate and its changes. Earth observation data are used for sustainable management and development of natural resources, land use, fisheries and agriculture. It is also critical to security and sovereignty, offering cost-effective, wide-area surveillance of land and maritime environments that are difficult to access, such as the Northwest Passage.

Ongoing Initiatives

Canada has been at the forefront of Earth observation data development, management, and exploitation since the early 1970s. It has become a world leader in synthetic aperture radar (SAR) data collection, operations, and services with RADARSAT-1, and continues with the launch of RADARSAT-2 in December 2007. Canada's RADARSAT-2 will provide substantially enhanced data products and services, as well as contribute to C-band SAR data continuity. Among Canada's many government users expected to benefit

from its data are Environment Canada, Fisheries and Oceans Canada, the Canadian Ice Service, Natural Resources Canada, the Department of National Defence, and the provinces and territories.

In the coming years the CSA's Earth observation focus will mainly be on RADARSAT-2 operations, the design of a constellation of next-generation radar satellites, and continuing leadership in innovative atmospheric instrumentation, and associated data analysis and modeling. The CSA will also continue its involvement in the European Space Agency's Earth observation programs and projects, and pursue the development of an instrument related to stratospheric wind studies through the SWIFT project.

Emerging Initiatives

Among emerging priorities, the CSA will evaluate the merits of the Polar Communications and Weather (PCW) mission, which is planned to provide unique temporal data with high spatial resolution over the whole northern circumpolar area. The data generated by SWIFT and PCW is expected to lead to significant advances in weather and climate prediction models and accuracy of operational weather prediction in the North, over North America, and globally, representing the first opportunity for Canada to contribute space-derived weather data to the international meteorological community.

Program Activity: Space Science and Exploration (SE)

Priority: Understand the solar system and the universe, expand our knowledge on the constituent elements and origins of life, and strengthen a human presence in space.

EXPECTED RESULT	PLANNED SPENDING ($ in millions)		
	2008-2009	2009-2010	2010-2011
Participation in Canadian and international missions expands the scientific knowledge base made available to Canadian academia and R&D communities in the areas of astronomy, space exploration and solar-terrestrial relations, as well as in physics and life sciences.	115.4	93.3	79.6

Main Initiatives for Space Science and Exploration (SE)

The CSA helps the scientific community to answer fundamental applied science questions of importance to Canadians and ensure dynamic space science research activities in Canada.

Ongoing Initiatives

Space Science and Exploration activities are grouped under Space Astronomy, Solar System, Solar-Terrestrial Relations, and Physical and Life Sciences in space.

Space Astronomy, Solar System and Solar-Terrestrial Relations
Over the next three years, a series of space astronomy missions contribute to a better understanding of the early universe and the internal structure of Sun-like stars. In parallel, the CSA is developing a key component of the James Webb Space Telescope planned for launch in 2013, as well as, contributions to two European Space Agency space astronomy missions - Herschel and Planck. The CSA will also be providing the ultraviolet detectors for the telescope UVIT to the Indian Space Research Organization (ISRO) for the ASTROSAT mission.

As for planetary exploration, the Canadian space science and exploration community will continue to work on the development of the Alpha Particle X-Ray Spectrometer (APXS), a key opportunity in international collaborative planetary exploration. The CSA has initiated the Near Earth Orbit Surveillance Satellite (NEOSSat) project, a micro-satellite to survey and track near-earth asteroids, comets, and satellites. This project will include a design for a multi-mission micro-satellite bus to support more frequent and affordable Canadian science and technology missions in the future.

Canadian scientists are leading a number of solar-terrestrial research projects on upcoming Canadian and international space missions such as e-POP (Canada's enhanced polar outflow probe), THEMIS (NASA), and Swarm (ESA) related to the study of the Earth's magnetic field. These will improve our understanding of the physics of the Sun, the heliosphere, solar storms, and the violent changes in the Earth's magnetosphere and ionosphere that can have dramatic impacts on satellites, communications, navigation, and human space flight. In addition, the CSA is considering a new the Canadian-led mission called ORBITALS to study the Earth's outer radiation belts, as well as a contribution to a the Chinese-led mission Ravens/KuaFu.

Physical and Life Sciences
Canadian scientists have been using Canada's allocation on the International Space Station and other vehicles to carry out basic and applied research in microgravity on fluid physics, human physiology, and materials processing. The CSA will continue the analysis of the enhanced Osteoporosis Experiments in Orbit (eOSTEO) that was successfully completed in September 2007.

With a trained and versatile astronaut corps, the CSA continues to develop and maintain human space flight expertise for the space science and human exploration programs. Canadian astronauts will perform science experiments on behalf of Canadian and international research communities and continue to participate in the assembly and maintenance of the International Space Station.

Canada's participation in the International Space Station (ISS) and its contribution of the Mobile Servicing System including Canadarm2 and Dextre to one of the most ambitious engineering project ever undertaken by mankind clearly demonstrates Canada's leadership in space robotics. The CSA will maintain its international commitment and fulfill its responsibilities to the ISS partnership through the provision of operational, training, logistical, support, and engineering services for the Mobile Servicing System (MSS) and supporting hardware and software.

Emerging Initiatives

The CSA selects, develops, and integrates initiatives that offer the most potential for socio-economic benefits for Canadians. The best ideas arising from scientific imperatives are strategically integrated with the technological capacity located within Canadian industry.

In planetary exploration, participation in the international Global Exploration Strategy (GES) remains the focus. With completion in 2007 of this key international framework document, Canada will be in a position to propose its own subset of activities in relation to the international exploration roadmap. Moon exploration is currently the main focus of our international partners. Under consideration are science-driven missions coupled with technological contributions to the surface of the moon that will also provide tangible benefits to Canadians on Earth in areas such as energy and the environment. Promising technology avenues for Canada such as surface mobility could be considered for future contributions to the international space exploration infrastructure.

Program Activity: Satellite Communications (SC)

Priority: Provide all Canadians with the means to participate in and fully benefit from the global information age.

EXPECTED RESULT	PLANNED SPENDING ($ in millions)		
	2008-2009	2009-2010	2010-2011
The systems and applications developed satisfy the needs of Canadians and of the Canadian government that are not being met by existing commercial systems and applications.	26.7	18.7	14.5

Main Initiatives for Satellite Communications (SC)

Satellite technologies have dramatically changed the world of communications. By offering instantaneous global access and global broadcasting, these technologies have begun to erase the notion of distance, bringing remote regions into a global village and enabling new business models based on broadband services, enhanced personal communications, global navigation, and positioning and localization services. Satellite Communications increase the connectivity of Canadian communities, support federal government departments in the delivery of programs and services.

Ongoing Initiatives

With the launch of Anik F2 in 2004, Canada's rural and remote areas are closer than ever to benefiting from services using broadband (Ka-band) capabilities. A range of non-commercial services is supported, including e-government, e-learning, tele-justice, tele-education, and tele-medicine services in psychiatry, radiology, surgery, and consultation. Specialists in main centres can use high-definition, real-time links. This reduces the cost of travel and improves accessibility and the quality of services for Canadians.

Putting into operation and increasing usage of the Ka-band Capacity Credit that the Government of Canada offers is one of the main areas of focus. Another is finalizing the development of Cascade, an experimental high-speed, high-capacity space messaging payload that is of interest to resource exploration firms, industry, and remote research communities.

Canada is also taking part in preparations for Europe's navigation satellite program, Galileo. Canadian industry has a role in construction of the infrastructure required to validate the feasibility of Galileo. The European Space Agency's ARTES program will be used to advance and demonstrate new telecommunications products and services developed by Canadian and European space industry partnerships.

Emerging Initiatives

The CSA will investigate how to increase communications capabilities available in northern Canada. Improved satellite communications will better serve the needs of our northern communities and support Canada's security and sovereignty. Various concepts to provide full-time coverage over Canada up to the North Pole will be studied in support of the Arctic priorities recently identified by the Government of Canada.

Program Activity: Generic Technological Activities (GTA) in support of EO, SE, and SC

Priority: Provide leadership, co-ordination or support to Earth Observation (EO), space science and exploration (SE), and satellite communications (SC) Program Activities through activities that are generic.

EXPECTED RESULT	PLANNED SPENDING ($ in millions)		
	2008-2009	2009-2010	2010-2011
Canada's industrial technological capabilities can meet the needs of future space missions and activities.	48.3	61.4	60.9

Main Initiatives for Generic Technological Activities (GTA) in support of EO, SE and SC

Generic Technological Activities support the three science and technology program activities by:

- Developing high-risk technologies with industry, academia, and not-for-profit organizations.
- Maintaining in-house technical capabilities for advanced R&D projects relevant to Canadian Space Agency programs.
- Providing world-class, cost-effective environmental space qualification testing and services.

Ongoing Initiatives

Priority technologies are defined in consultation with industry and other stakeholders. The new technology plan will provide roadmaps and a multi-year implementation plan to guide and prioritize CSA's technology programs.

The Space Technology Development Program enhances Canada's support for national and international space missions or activities of Canadian interest. Each year, requests for proposals are issued and new technology development contracts are awarded to industry.

The transfer and commercialization of space technologies and their applications to other sectors of the economy enhances Canada's industrial competitiveness. This is achieved by managing the CSA portfolio of patents and intellectual property licenses, as well as by conducting commercialization assessments.

The David Florida Laboratory continues to support space mission development by carrying out world-class and cost-effective environmental space-qualification services for the assembly, integration, and testing of spacecraft systems. In addition to providing test services for CSA's space programs, services will continue to be provided to other national and international clients.

Program Activity: Space Awareness and Learning (AL)

Priority: Further public understanding and engagement with regards to space-related issues, ultimately leading to improving the scientific literacy of Canadians.

EXPECTED RESULTS	PLANNED SPENDING ($ in millions)		
	2008-2009	2009-2010	2010-2011
Targeted level of awareness of Canadians towards space is reached.	7.9	8.9	8.8

Main Initiatives for Space Awareness and Learning (AL)

The Government of Canada is committed to building a 21st century economy through its Science and Technology Strategy. If Canada is to meet the challenge posed by a global economy, Canadians must be encouraged to pursue careers and develop skills in science and technology, as innovation is crucial to success. We must encourage science and technology literacy today, particularly among our youth if we are to influence their choice of science and technology careers in the future.

The CSA is working with a growing number of partners to enhance public understanding and engagement, especially among youth and their families, through a range of learning and awareness initiatives.

Ongoing Initiatives

The Learning Program is reaching out to a greater number of partners and has forged solid relationships with other government departments, science centres and museums, youth and science associations, the private sector, and the education community across Canada.

To ensure Canada's capacity to conduct breakthrough science and maintain its leadership in technological innovation, we must also be able to attract, develop, and retain highly qualified personnel in science and engineering, including fields related to space.

Canadians' interest in science and technology must also be engaged by sharing our discoveries and breakthroughs in meaningful ways that communicate their positive impact on the daily lives of Canadians. Activities supporting this priority include media relations and information services, exhibitions and creative services, and awareness events with astronauts, scientists, and engineers.

Program Activity: Internal Services

Priority: Implement the government's commitment to modern public service in accordance with the Management Accountability Framework's (MAF) expectations.

EXPECTED RESULTS	PLANNED SPENDING ($ in millions)		
	2008-2009	2009-2010	2010-2011
1. Internal Services provide an added value to CSA managers in the performance of their duties. 2. Key corporate risks are addressed and mitigated.	40.6	39.9	39.9

Main Initiatives for Internal Services

The Internal Services Program Activity covers the following sub-activities: Management and Oversight, Human Resources Management, Financial Management, Supply Chain Management, Facilities and Asset Management, Information Management, Information Technology, Public Affairs and Communications, Program Evaluation, Internal Audit, and Legal Services.

During the planning horizon of this Report on Plans and Priorities (RPP), the CSA will continue to improve its management practices in accordance with the Management Accountability Framework (MAF). Special attention will be given to the implementation of the Policy on the Management of Resources and Results Structure (MRRS), the Public Service Modernization Act and the integration of sound risk management practices into all decision-making processes.

1.7 VOTED AND STATUTORY ITEMS

2008-2009			
Vote or Statutory Item	Truncated Vote or Statutory Wording	**2008-2009 Main Estimates** ($ in millions)	2007-2008 Main Estimates ($ in millions)
25	Operating expenditures	**193.1**	185.5
30	Capital expenditures	**118.1**	119.0
35	Grants and contributions	**46.4**	52.6
(S)	Contributions to employee benefit plans	**10.6**	11.1
	Total Agency	**368.2**	**368.2**

1.8 DEPARTMENTAL PLANNED SPENDING AND FULL-TIME EQUIVALENTS (FTEs)

($ in millions)	Forecast Spending 2007-2008	Planned Spending 2008-2009	Planned Spending 2009-2010	Planned Spending 2010-2011
Space Based Earth Observation	126.6	**145.2**	142.4	146.7
Space Science and Exploration	153.7	**129.8**	105.4	90.1
Satellite Communications	27.9	**30.0**	21.1	16.4
Space Awareness and Learning	7.2	**8.9**	10.1	10.0
Generic Technological Activities	52.7	**54.3**	69.3	69.0
Budgetary Main Estimates (gross) [1]	368.2	**368.2**	348.3	332.2
Non-Budgetary Main Estimates (gross)	-	-	-	-
Less: Respendable revenue	-	-	-	-
Total Main Estimates	368.2	**368.2**	348.3	332.2
Adjustments [2]:				
Supplementary Estimates				
Operating carry forward	9.7			
Collective agreements compensation	0.4			
Incremental funding to build-up the Audit capacity	0.2			
Incremental funding to build-up the Evaluation capacity	0.2			
Transfer to Industry Canada (IC) for the RADARSAT-2 project Vote 1 [3]	(3.0)			
Transfer from Atlantic Canada Opportunities Agency (ACOA) – in support of ACOA/CSA joint Life & Physical Sciences Initiative	0.2			
Reinvestment of royalties from the sale of RADARSAT-1 data	4.0	**4.1**	4.1	4.1
Capital carry forward (2006-2007 to 2007-2008)	1.0			
Capital carry forward (2007-2008 to 2008-2009)	(0.3)	**0.3**		
ARLU				
Reprofiling of funds	(57.7)			
Total adjustments	(45.4)	**4.4**	4.1	4.1
Total Planned Spending	322.8	**372.6**	352.4	336.3
Less: Non-Respendable revenue	6.9	**2.5**	2.0	1.7
Plus: Cost of services received without charge	4.4	**5.3**	5.3	5.4
Total Department Spending	320.3	**375.4**	355.7	339.9
Full-Time Equivalents	619.4	**724.0**	722.0	721.7

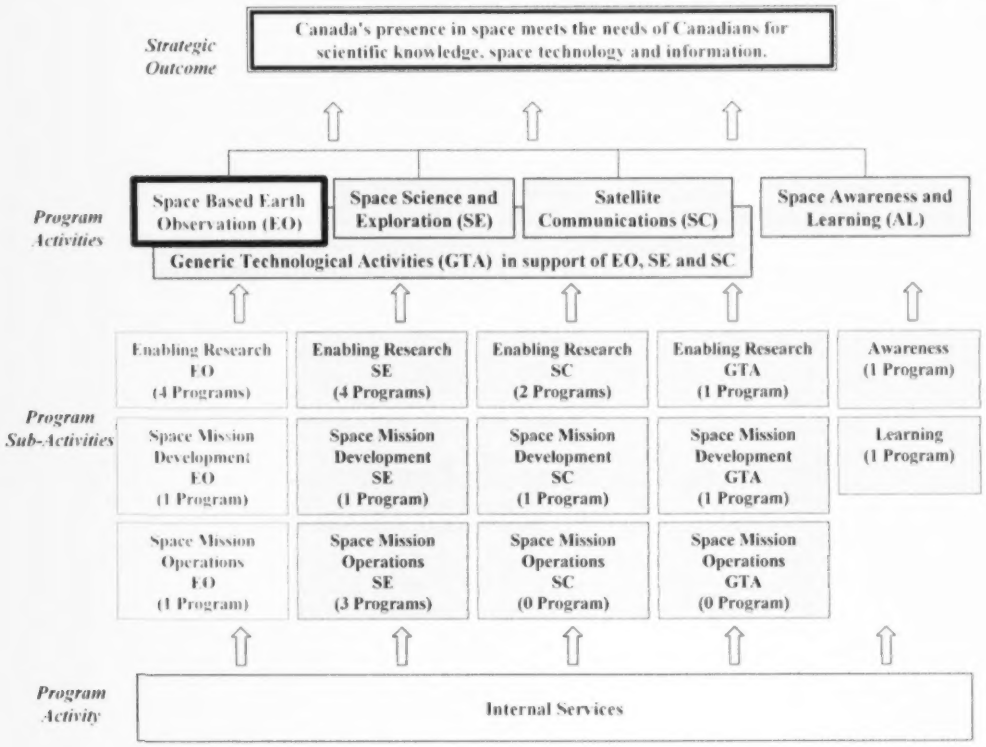
Note: Due to rounding, decimals may not add up to totals shown.

1. The Program Activities shown in this table include amounts for Internal Services.
2. Adjustments are to accommodate approvals obtained since the Main Estimates and include Budget Initiatives, Supplementary Estimates, etc.
3. Original transfer from IC to CSA through 2007-08 ARLU for the RADARSAT-2 project that was not approved by TBS who instructed CSA to return the funds.

SECTION 2: ANALYSIS OF PROGRAM ACTIVITIES BY STRATEGIC OUTCOME

The following detailed analysis outlines how program activities contribute in various degrees to the attainment of the strategic outcome, how key programs and services contribute to program activity priorities, and how the CSA will report on its performance over the coming years.

Space Based Earth Observation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Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: Develop and operationalize the use of Space Based Earth Observation (EO) for the benefit of Canadians.

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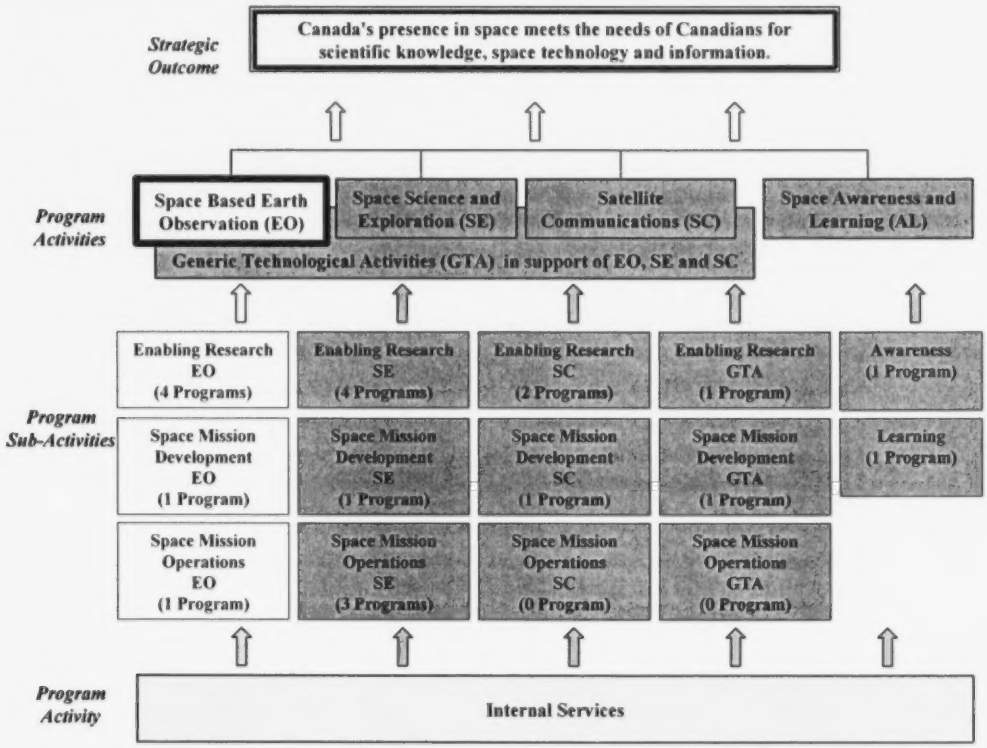
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Program Activity Priority: Develop and operationalize the use of Space Based Earth Observation (EO) for the benefit of Canadians.

SPACE BASED EARTH OBSERVATION (EO) PROGRAM ACTIVITY PERFORMANCE MEASUREMENT	
Expected Result #1	**Performance Indicators**
The benefits of activities of Earth Observation from space serve Canadians users in the areas of the environment, resource and land use management, and, security and sovereignty.	1. Proportion of active or successful missions relative to the total number of missions supported by Canada in the three priority EO areas. 2. Number of applications and users per EO mission. 3. Number of citations and peer-reviewed papers produced in academia and the R&D community in Canada as a result of the CSA's participation in Canadian and international EO missions.
Planning and Reporting Continuity: RPP 2007-2008: http://www.space.gc.ca/asc/eng/resources/publications/rpp-2007.asp - 2.1 DPR 2006-2007: http://www.space.gc.ca/asc/eng/resources/publications/pr-2007.asp - 2.2	

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	129.2	126.1	128.4
HUMAN (FTEs)	82.2	81.6	67.1

The programs under this Program Activity are divided into three Sub-Activities: Enabling Research, Space Mission Development and Space Mission Operations.

ENABLING RESEARCH – EARTH OBSERVATION

Objective: Provide leadership, coordination or support to Earth Observation (EO) applied research and experimental development in line with the CSA priorities and stakeholders expectations in order to increase the knowledge base and devise new applications through space missions, and to allow the transfer of intellectual property and proven technologies to Canadian industry, academia, and government organizations.

Expected Result #1	Performance Indicators
New project/mission concepts that progress to subsequent development phases related to Agency priorities.	1. Ratio of the number of new concepts presented to the number of new concepts retained for subsequent phases. 2. Quality of the concepts retained based on the average evaluation rating obtained according to the Priority Ranking Framework.
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all enabling research projects/missions.	1. Number of consulting requests received by CSA personnel from internal sources (matrix support), as well as from the private sector, academia and other space agencies. 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	26.8	28.0	24.1
HUMAN (FTEs)	16.6	13.0	12.8

Main Expected Accomplishments:

- Following the successful launch of RADARSAT-2 in December 2007, the Canadian government data allocation plan will be implemented to manage the $445 million worth of prepaid data from the satellite. The objective of the program is to ensure that the Canadian Government effectively uses the allocation.

- Through the Earth Observation Application Development (EOADP) and the Government Related Initiatives (GRIP) Programs, the CSA will continue satellite data application development and utilization, to support the growth of EO capabilities within Canadian Government Departments and within value-added industry.

- The CSA will complete the assessment of the requirements of the Canadian government users for a polar satellite system as part of a joint study with Department of National Defense and Environment Canada. The Concept of the Polar Communications and Weather Mission is to put a constellation of satellites in highly elliptical orbit over the North Pole to provide communication services and monitor weather in the Arctic region.

SPACE MISSION DEVELOPMENT – EARTH OBSERVATION

Objective: Provide coordination or support to the development of Earth Observation (EO) space missions in line with CSA priorities and stakeholders expectations through the definition, critical design, manufacturing, integration, testing and delivery phases leading to launch and early operations of space systems.

Expected Result #1	Performance Indicator
Space mission proposals that efficiently, effectively and economically progress to subsequent operations phases in accordance with objectives, requirements, initial or revised specifications.	1. Percentage of projects requiring more than one EPA (Effective Project Approval) or an amendment to initial EPA over total number of projects (differentiating if modifications are attributable to factors outside or within CSA zone of control).
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all Space mission development projects.	1. Rate of expertise matrix support to all of CSA's program activities. 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	86.7	89.0	94.7
HUMAN (FTEs)	34.0	40.7	20.8

Main Expected Accomplishments:

- With the successful launch of RADARSAT-2 on December 14, 2007, its commissioning and transition to routine operations will be completed by April 2008. The CSA will close the RADARSAT-2 Major Crown Project by September 2008.

- Further progress will be made in the development of the next generation of RADARSAT satellites, and risk mitigation activities will be carried out on the SWIFT instrument.

SPACE MISSION OPERATIONS – EARTH OBSERVATION

Objective: Provide coordination or support to the operations of Earth Observation (EO) space missions in line with the CSA priorities and stakeholders' expectations through the development and conduct of on-orbit operations, system maintenance and logistic support, as well as data handling and delivery.

Expected Result #1	Performance Indicator
Space mission operations are managed effectively and efficiently.	1. Percentage of projects that meet initial objectives in terms of data delivery to users.
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all Space mission operations.	1. Level of internal proactivity in terms of innovation and production expertise for missions in operational phase. 2. Annual rate of investment in maintenance and improvement of the infrastructure required for mission operations.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	15.6	9.1	9.6
HUMAN (FTEs)	31.6	27.9	33.5

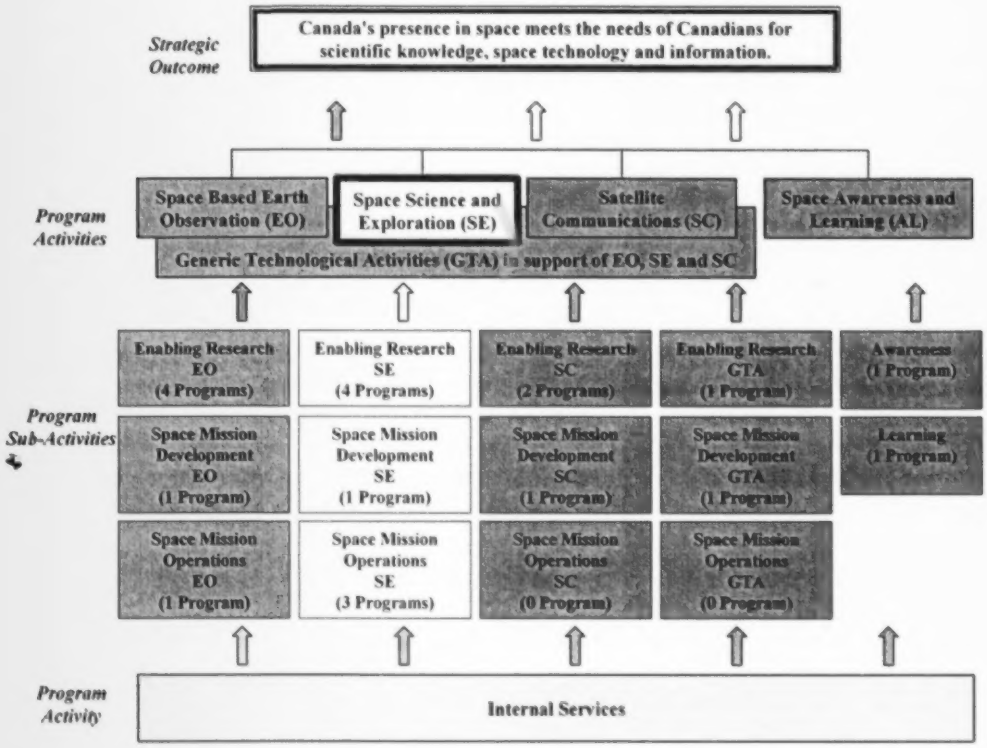
Main Expected Accomplishments:

- RADARSAT-1 operations will continue with the usual level of high performance for satellite reliability and image production, and the supply of data to Canadian Government clients from RADARSAT-2 will begin in 2008 upon the commissioning of RADARSAT 2 as per client needs. With two satellites in operations data continuity to users is more assured. Moreover, a contingency plan is in place to secure the use of foreign sensors as backup in order to continue to meet the needs of operational users if Canadian satellites were unable to meet this requirement. This contingency plan provides and equivalent back-up capability using RADARSAT-1 and -2 data to ESA in case of national asset failures.
- The CSA will continue to operate SCISAT, a Canadian mission launched in 2003 that is providing a large amount of very high quality data on more than 30 chemical species in the atmosphere for climate, weather and pollution studies. Through an agreement with ESA and NASA, the data from those SCISAT orbits not accessible from Canada will be received by ESA and NASA receiving stations and provided to Canadian scientists, which greatly expands the range of coverage.

To learn more about the Earth Observation Program Activity, go to:
http://www.space.gc.ca/asc/eng/resources/publications/default.asp#parliament

To learn more about Earth Observation, go to:
http://www.space.gc.ca/asc/eng/satellites/default.asp?page=observation

Space Science and Exploration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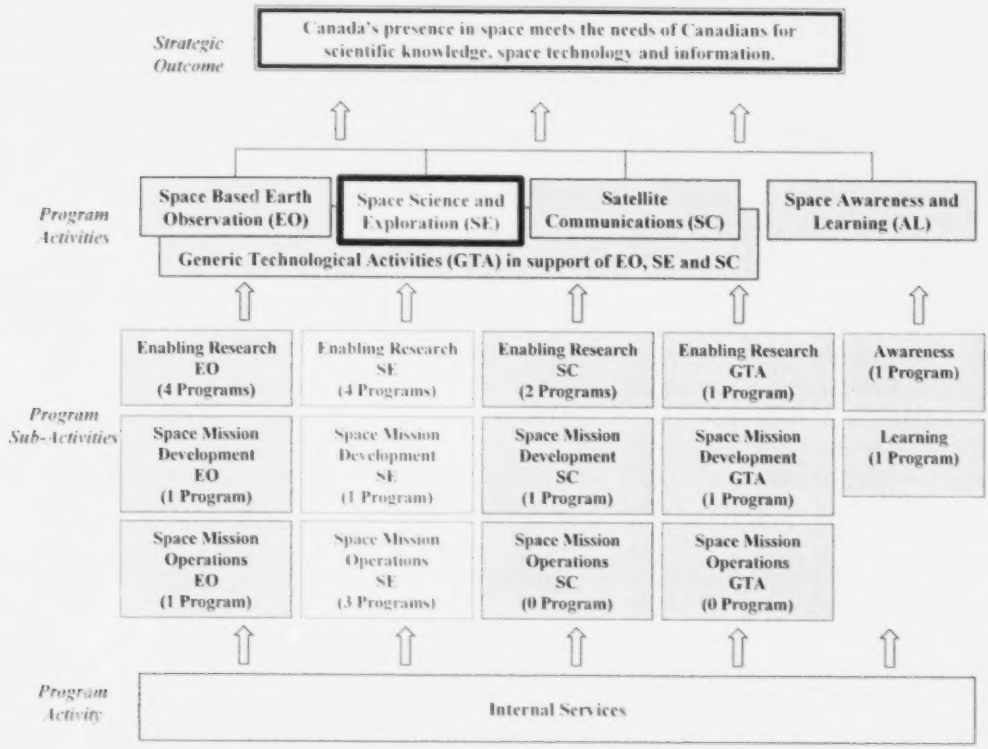
Program Activity
Internal Services

Program Activity Priority: Understand the Solar System and the Universe, expand our knowledge on the constituent elements and origins of life, and strengthen a human presence in space.

Space Science and Exploration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Program Activity
Internal Services

Program Activity Priority: Understand the Solar System and the Universe, expand our knowledge on the constituent elements and origins of life, and strengthen a human presence in space.

SPACE SCIENCE AND EXPLORATION (SE) PROGRAM ACTIVITY PERFORMANCE MEASUREMENT	
Expected Result #1	**Performance Indicators**
Participation in Canadian and international missions expands the scientific knowledge base made available to Canadian academia and R&D communities in the areas of astronomy, space exploration and solar-terrestrial relations, as well as in the physical and life sciences.	1. Proportion of active or successful missions relative to the total number of missions supported by Canada in the priority science and space exploration areas. 2. Proportion of applications/technologies developed per space exploration and science mission that are in line with the CSA's priority technology niche areas. 3. Number of citations and peer-reviewed papers produced in academia and the R&D community in Canada as a result of the CSA's participation in Canadian and international space exploration and science missions.
Planning and Reporting Continuity: RPP 2007-2008: http://www.space.gc.ca/asc/eng/resources/publications/rpp-2007.asp - 2.2 DPR 2006-2007: http://www.space.gc.ca/asc/eng/resources/publications/pr-2007.asp - 2.3	

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	115.4	93.3	79.6
HUMAN (FTEs)	188.4	181.5	179.8

The programs under this Program Activity are divided into 3 Sub-Activities: Enabling Research, Space Mission Development and Space Mission Operations.

ENABLING RESEARCH – SPACE SCIENCE AND EXPLORATION

Objective: Provide leadership, coordination or support to Space Science and Exploration (SE) applied research and experimental development in line with the CSA priorities and stakeholders expectations in order to increase the knowledge base and devise new applications through space missions, and to allow the transfer of intellectual property and proven technologies to Canadian industry, academia, and government organizations.

Expected Result #1	Performance Indicators
New project/mission concepts that progress to subsequent development phases related to Agency priorities.	1. Ratio of the number of new concepts presented to the number of new concepts retained for subsequent phases. 2. Quality of the concepts retained based on the average evaluation rating obtained according to the Priority Ranking Framework.
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all enabling research projects/missions.	1. Number of consulting requests received by CSA personnel from internal sources (matrix support), as well as from the private sector, academia and other space agencies. 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	25.7	23.3	18.5
HUMAN (FTEs)	39.5	38.9	37.7

Main Expected Accomplishments:

- The CSA will continue to participate actively in the International Space Exploration Coordination Group that was created in 2007 to promote coordination of Moon and Mars exploration between various space agencies around the world. The CSA will establish an Exploration Core Program to support the development of prototypes of systems that could become potential contributions to future Moon or Mars missions. This Program ensures the readiness of the space exploration community in Canada and will be implemented with industry, university and research institutions.

- Maintain a trained and versatile Astronaut Corps to develop and maintain human space flight expertise to meet the requirements of the CSA's space sciences and human exploration programs. Two Canadian astronauts have started training in preparation for an assignment to a long-duration space flight on the ISS in the 2009 timeframe. The CSA will continue to explore activities related to the Advanced Astronaut Medical Support (ADAMS) program. Specifically, CSA will continue to explore solutions to the delivery of health care on future long duration exploration-class missions and how these solutions can help improve healthcare delivery on Earth through the transfer of space technology.

SPACE MISSION DEVELOPMENT – SPACE SCIENCE AND EXPLORATION

Objective: Provide coordination or support to the development of Space Science and Exploration (SE) space missions in line with CSA priorities and stakeholders expectations through the definition, critical design, manufacturing, integration, testing and delivery phases leading to launch and early operations of spacesystems.

Expected Result #1	Performance Indicator
Space mission proposals that efficiently, effectively and economically progress to subsequent operations phases in accordance with objectives, requirements, initial or revised specifications.	1. Percentage of projects that require more than one EPA (Effective Project Approval) or an amendment to initial EPA over total number of projects (differentiating if modifications are attributable to factors outside or within CSA zone of control).
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all Space mission development projects.	1. Rate of expertise matrix support to all of CSA's program activities. 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	36.0	15.6	6.5
HUMAN (FTEs)	22.1	18.1	17.1

Main Expected Accomplishments:

- The Enhanced Polar Outflow Probe (e-POP) integrated with the CASSIOPE Mission, is scheduled for launch in 2009. The suite of e-POP instruments will undergo environmental testing in the CSA's David Florida Laboratory. The scientific data collected by e-POP will help scientists understand particle exchange and energy coupling processes between the Earth's atmosphere and space environment.

- The CSAwill deliver to NASA the Alpha Particle X-ray Spectrometer (APXS) for the Mars Science Laboratory to be launched by NASA in 2009. The Canadian contribution will help scientists to determine the chemical composition of various soil, dust and rock samples on the planet.

- Canada is participating in the James Webb Space Telescope (JWST) that will be launched in 2013. Canada is responsible for the Fine Guidance Sensor (FGS), which ensures the very precise pointing of the telescope and the provision of simultaneous images. The design of the FGS will be completed and the manufacturing will continue in 2008-2009. By virtue of the CSA's contribution, Canadian astronomers will have guaranteed access to 5% of the observing time of the James Webb Space Telescope.

- The Local Oscillator Source Unit (LSU) that was successfully integrated in the Heterodyne Instrument for the Far Infrared (HIFI) of the European Space Agency's Herschel satellite will be launched in 2008. The satellite will carry an infrared telescope and three scientific instruments that will allow scientists to address key science questions such as how galaxies were formed in the early universe and how stars have been forming throughout the history of the universe.

SPACE MISSION OPERATIONS – SPACE SCIENCE AND EXPLORATION

Objective: Provide coordination or support to the operations of Space Science and Exploration (SE) space missions in line with the CSA priorities and stakeholders' expectations through the development and conduct of on-orbit operations, system maintenance and logistic support, as well as data handling and delivery.

Expected Result #1	Performance Indicator
Space mission operations are managed effectively and efficiently.	1. Percentage of projects that meet initial objectives in terms of data delivery to users.
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all Space mission operations.	1. Level of internal proactivity in terms of innovation and production expertise for missions in operational phase. 2. Annual rate of investment in maintenance and improvement of the infrastructure required for mission operations.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	53.8	54.4	54.6
HUMAN (FTEs)	126.8	124.5	124.9

Main Expected Accomplishments:

- On the International Space Station, CSA will upgrade its ground control operations of Canadarm2 enabling the handling of heavy payloads from the ground, and will initiate limited ground control operations of Dextre (Special Purpose Dexterous Manipulator) to be launched in March 2008 on Shuttle mission STS-123/1J/A. The development of expanded ground control capabilities will reduce significantly astronaut time requirement for future Dextre operations.

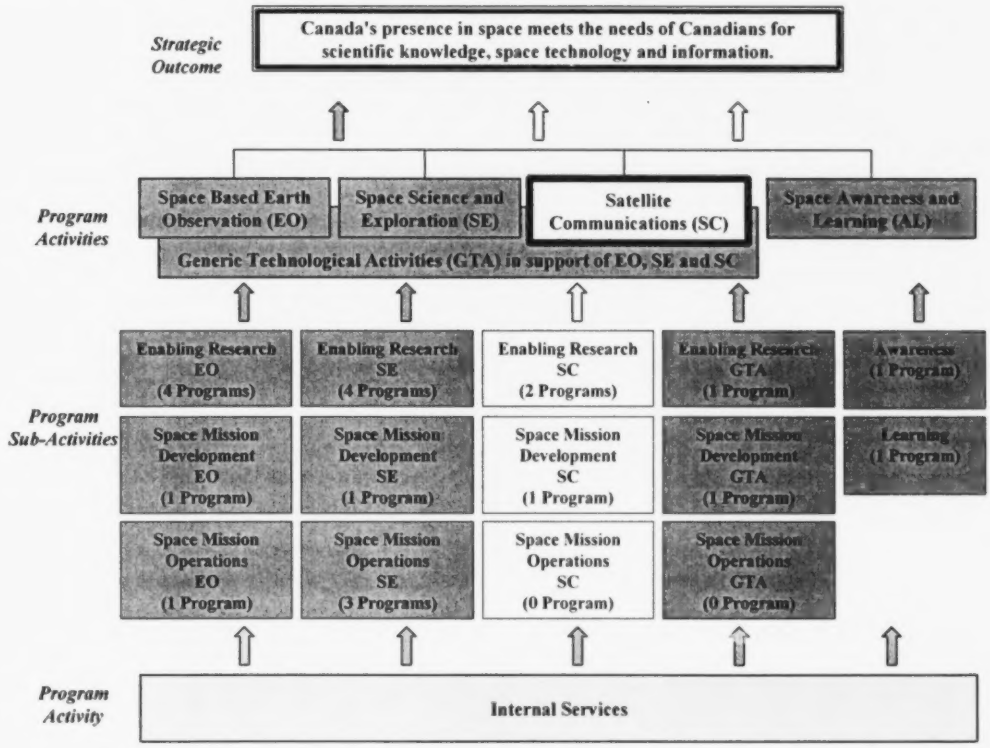
- The Phoenix mission, successfully launched in August 2007, is targeted to land on the northern polar region of Mars on May 25th, 2008. It will provide basic scientific knowledge of the Martian atmosphere, and will permit Canadian scientists to have access to all data from the mission. This mission will position Canada as a respected and reliable provider of planetary science instrumentation.

- The CSA will continue the analysis of the e-OSTEO space mission scientific experiments that were successfully completed in September 2007. These experiments focus on bone loss in space that is one of the major obstacles to long duration spaceflight.

To learn more about Space Science and Exploration Program Activity, go to:
http://www.space.gc.ca/asc/eng/resources/publications/default.asp#parliament

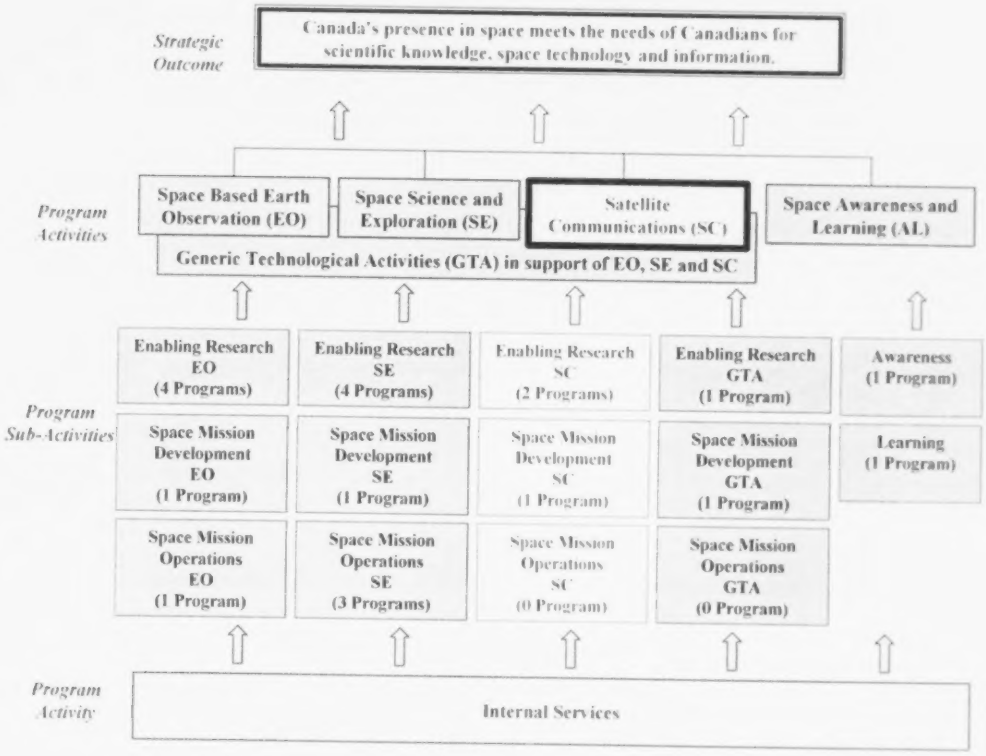
To learn more about Space Science and Exploration, go to:
http://www.space.gc.ca/asc/eng/sciences/default.asp and,
http://www.space.gc.ca/asc/eng/exploration/default.asp

Satellite Communications


Strategic Outcome
Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.
Program Activities
Space Based Earth Observation (EO)
Space Science and Exploration (SE)
Satellite Communications (SC)
Space Awareness and Learning (AL)
Generic Technological Activities (GTA) in support of EO, SE and SC
Program Sub-Activities
Enabling Research EO (4 Programs)
Enabling Research SE (4 Programs)
Enabling Research SC (2 Programs)
Enabling Research GTA (1 Program)
Awareness (1 Program)
Space Mission Development EO (1 Program)
Space Mission Development SE (1 Program)
Space Mission Development SC (1 Program)
Space Mission Development GTA (1 Program)
Learning (1 Program)
Space Mission Operations EO (1 Program)
Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: Provide all Canadians with the means to participate in and fully benefit from the global information age.

Satellite Communications


Strategic Outcome
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Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: Provide all Canadians with the means to participate in and fully benefit from the global information age.

SATELLITE COMMUNICATIONS (SC) PROGRAM ACTIVITY PERFORMANCE MEASUREMENT	
Expected Result #1	**Performance Indicators**
The systems and applications developed satisfy the needs of Canadians and of the Canadian government that are not being met by existing commercial systems and applications.	1. Studies that clearly identify needs that are not being met by technological systems and applications. 2. List of capability enhancements developed in response to the unmet needs of commercial and government services. 3. Number of applications and users per SC mission.
Planning and Reporting Continuity: RPP 2007-2008: http://www.space.gc.ca/asc/eng/resources/publications/rpp-2007.asp - 2.3 DPR 2006-2007: http://www.space.gc.ca/asc/eng/resources/publications/pr-2007.asp - 2.4	

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	26.7	18.7	14.5
HUMAN (FTEs)	12.9	14.0	14.2

The programs under this Program Activity are divided into three Sub-Activities: Enabling Research, Space Mission Development and Space Mission Operations. However, no Space Mission Operations are mentioned in this report.

ENABLING RESEARCH – SATELLITE COMMUNICATIONS

Objective: Provide leadership, coordination or support to Satellite Communications (SC) applied research and experimental development in line with the CSA priorities and stakeholders expectations in order to increase the knowledge base and devise new applications through space missions, and to allow the transfer of intellectual property and proven technologies to Canadian industry, academia, and government organizations.

Expected Result #1	Performance Indicators
New project/mission concepts that progress to subsequent development phases related to Agency priorities.	1. Ratio of the number of new concepts presented to the number of new concepts retained for subsequent phases. 2. Quality of the concepts retained based on the average evaluation rating obtained according to the Priority Ranking Framework.

Expected Result #2	Performance Indicators
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all enabling research projects/missions.	1. Number of consulting requests received by CSA personnel from internal sources (matrix support), as well as from the private sector, academia and other space agencies. 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	16.6	15.3	13.5
HUMAN (FTEs)	6.0	6.0	6.0

Main Expected Accomplishments:

- The CSA will continue to work towards the utilization of the Anik F2 Government of Canada capacity credit for broadband telecommunications services in the North. Additional demonstration of Ka-band technology will improve the use of the Anik F2 satellite by northern communities for trials of innovative Canadian government services and in specific areas of interest to other government departments.
- The CSA will complete the assessment of the telecommunications requirements of federal government users in order to support the definition of two mission concepts in 2008-2009. They are:
    - The next Generation Satellite Communication Payload Mission, consisting of an advanced V-Band transporter on board on Telesat's future Anik satellites.
    - The Polar Communications and Weather Satellite, consisting of a high data rate communications providing coverage of the polar cap in the high Arctic.

SPACE MISSION DEVELOPMENT – SATELLITE COMMUNICATIONS

Objective: Provide coordination or support to the development of Satellite Communications (SC) space missions in line with CSA priorities and stakeholders expectations through the definition, critical design, manufacturing, integration, testing and delivery phases leading to launch and early operations of space systems.

Expected Result #1	Performance Indicator
Space mission proposals that efficiently, effectively and economically progress to subsequent operations phases in accordance with objectives, requirements, initial or revised specifications.	1. Percentage of projects that require more than one EPA (Effective Project Approval) or an amendment to initial EPA over total number of projects (differentiating if modifications are attributable to factors outside or within CSA zone of control).
Expected Result #2	**Performance Indicators**
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all Space mission development projects.	1. Rate of expertise matrix support to all of CSA's program activities. 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	10.1	3.4	1.0
HUMAN (FTEs)	6.9	8.0	8.2

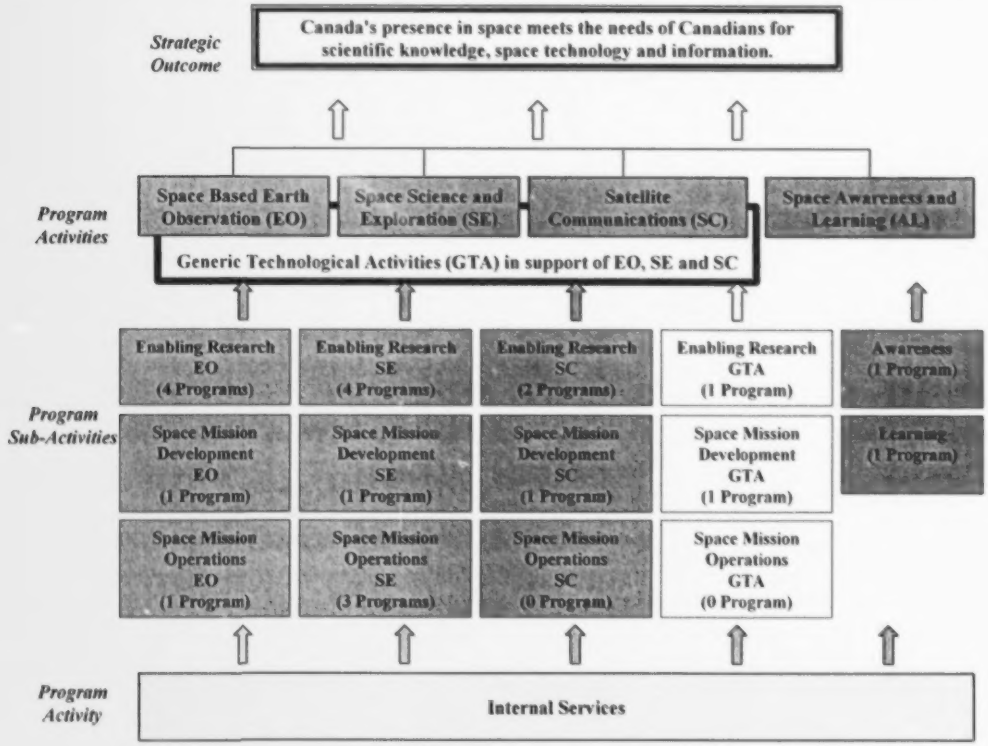
Main Expected Accomplishments:

In 2004-2005, as part of the CASSIOPE Mission Contribution Program, the CSA initiated the development and demonstration of the Cascade telecommunications payload on a small satellite bus. This small satellite spacecraft is being designed and constructed by Canadian companies. During 2008, integration and environmental testing of the spacecraft will be completed and the launch is planned in 2009. Cascade is the precursor of a communication satellite constellation that will help position Canadian industry on the international market, both as a supplier of advanced components and as a service provider of high-volume, high-data-rate telecommunications anywhere in the world.

To learn more about Satellite Communications Program Activity, go to: http://www.space.gc.ca/asc/eng/resources/publications/default.asp#parliament

To learn more about Satellite Communications, go to: http://www.space.gc.ca/asc/eng/satellites/default.asp

Generic Technological Activities in support of Earth Observation, Space Science and Exploration, and Satellite Communications


Strategic Outcome
Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.
Program Activities
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Enabling Research SE (4 Programs)
Enabling Research SC (2 Programs)
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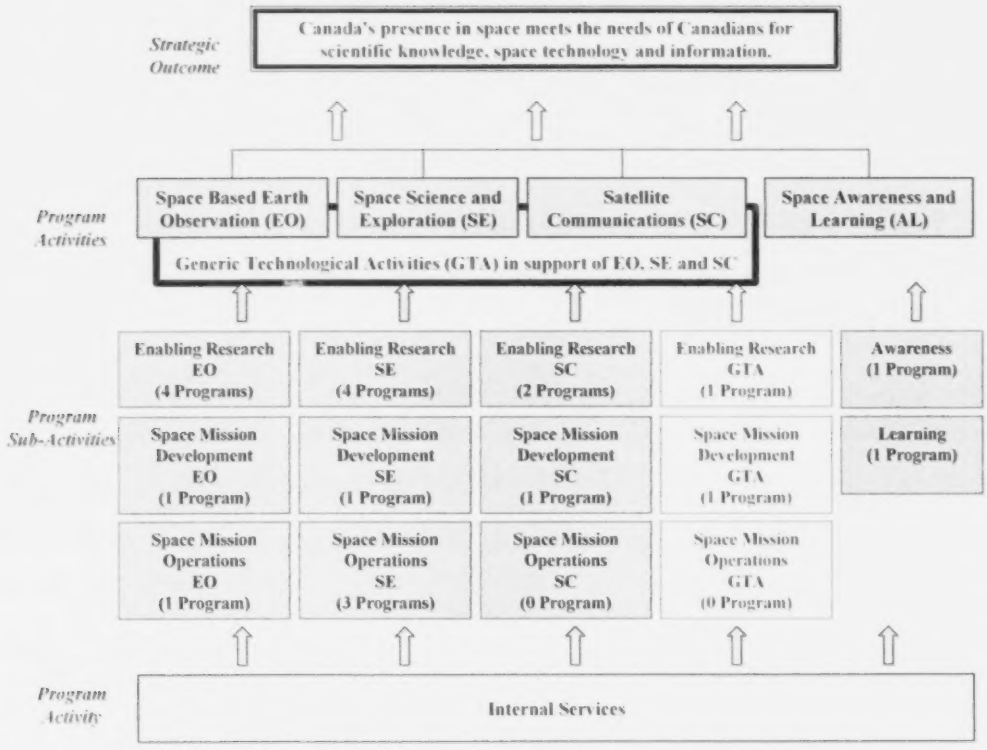
Space Mission Development GTA (1 Program)
Learning (1 Program)
Space Mission Operations EO (1 Program)
Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: Provide leadership, co-ordination or support to Earth Observation (EO), Space Science and Exploration (SE), and Satellite Communications (SC) Program Activities through activities that are generic.

Generic Technological Activities in support of Earth Observation, Space Science and Exploration, and Satellite Communications


Strategic Outcome
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Program Activities
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Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: Provide leadership, co-ordination or support to Earth Observation (EO), Space Science and Exploration (SE), and Satellite Communications (SC) Program Activities through activities that are generic.

GENERIC TECHNOLOGICAL ACTIVITIES (GTA) IN SUPPORT OF EO, SE, AND SC PROGRAM ACTIVITY PERFORMANCE MEASUREMENT	
Expected Result #1	**Performance Indicators**
Canada's industrial technological capabilities can meet the needs of future space missions and activities.	1. Ratio of the number of priority technologies identified for future EO, SE and SC missions to the number of priority technologies developed in GTA. 2. Number of priority technologies that are ready to be used.
Planning and Reporting Continuity: RPP 2007-2008: http://www.space.gc.ca/asc/eng/resources/publications/rpp-2007.asp - 2.4 DPR 2006-2007: http://www.espace.gc.ca/asc/eng/resources/publications/pr-2007.asp#2.5	

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	48.3	61.4	60.9
HUMAN (FTEs)	141.4	146.6	161.6

The programs under this Program Activity are divided into three Sub-Activities: Enabling Research, Space Mission Development and Space Mission Operations. However, no Space Mission Operations are mentioned in this report.

ENABLING RESEARCH – GENERIC TECHNOLOGICAL ACTIVITIES IN SUPPORT OF EO, SE, AND SC

Objective: Provide leadership, coordination or support EO, SE and SC applied research and experimental development in line with the CSA priorities and stakeholders expectations.

Expected Result #1	Performance Indicator
Space technology concepts that support projects/missions related to Agency priorities.	1. Rate of adherence to the technology development plan/track records.
Expected Result #2	**Performance Indicators**
Canadian industries and research organizations that are actively involved in space research and development.	1. Number of requests received vs. number of requests accepted (annual request for proposals process). 2. Number of requests received vs. number of requests funded (annual request for proposals process).

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	40.5	52.5	52.6
HUMAN (FTEs)	96.9	102.1	116.6

Main Expected Accomplishments:

- The Space Technology Development Program (STDP) addresses priority technologies required for national and international space missions and activities of interest to the CSA programs. Through periodic Requests for Proposal, STDP awards R&D contracts to industry and research organizations to create mission concepts, propose innovative technologies, retire risk on the critical technologies required for future missions, and contribute to the enhancement of Canadian capabilities through the demonstration of new products and services.

- Through the Space Technology Research Program develop long-term high-risk space technologies and maintain in-house technical capabilities by conducting advanced R&D projects that meet the criteria of excellence and relevance in support of the implementation of the CSA space programs.

SPACE MISSION DEVELOPMENT – GENERIC TECHNOLOGICAL ACTIVITIES IN SUPPORT OF EO, SE, AND SC

Objective: Provide coordination or support to the development of EO, SE and SC space missions in line with CSA priorities and stakeholders expectations through the definition, critical design, manufacturing, integration, testing and delivery phases leading to launch and early operations of space systems.

Expected Result #1	Performance Indicators
The CSA's in-house personnel are highly qualified, with recognized expertise, and are supported by a high-technology infrastructure that is suited to all Space mission development projects.	1. Number of space missions supported by DFL facilities (or rate of use of the facilities). 2. Median number of years of experience of specialized personnel across the Agency and the corresponding median classification.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	7.8	8.9	8.3
HUMAN (FTEs)	44.5	44.5	45.0

Main Expected Accomplishments:

David Florida Laboratory provides world-class and cost-effective environmental space qualification services for the assembly, integration and testing of spacecraft systems and sub-systems to all of the CSA's programs. Many projects will benefit from DFL support, such as for:

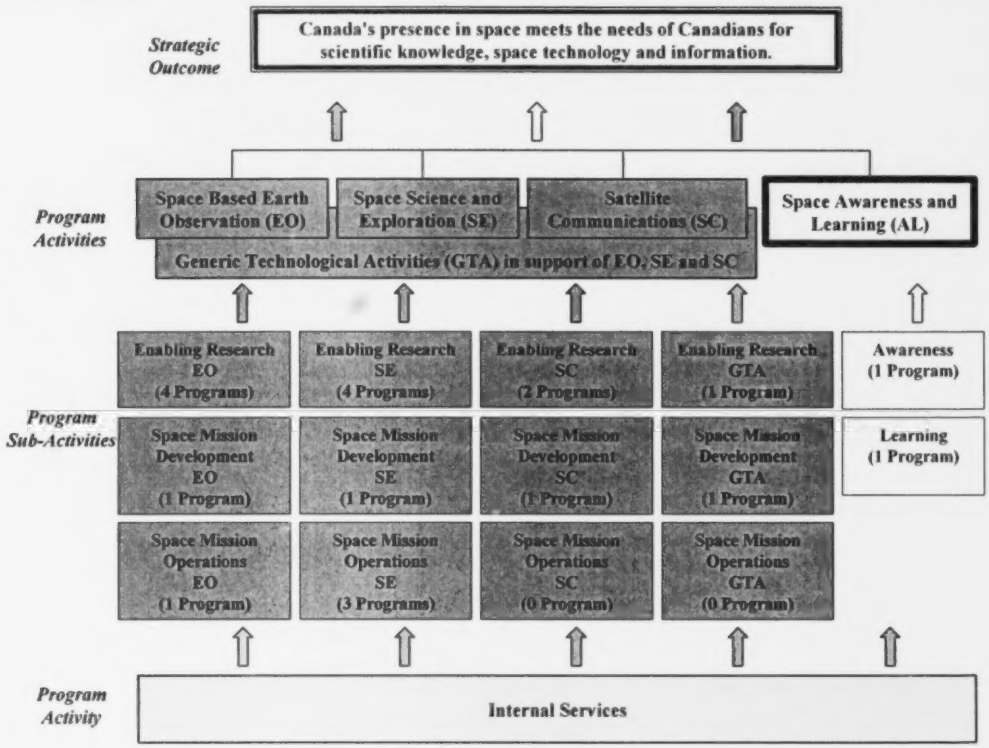
- Science and Exploration: CASSIOPE e-POP mission; Neossat; James Webb Space Telescope (JWST); and the UltraViolet Imaging Telescope (UVIT);
- Satellite Communications: CASSIOPE Cascade mission;
- Commercial Programs: Various spacecraft from Space Systems Loral, MDA (SSRMS & SRMS), TenXc Wireless (PCS Antennas), Inmarsat Aeronautical Antennas, Harris Corporation (MUOS); and,
- Other Government Departments: DND CF-18 Radome Characterization Project.

To learn more about Generic Technological Activities Program Activity, go to:
http://www.space.gc.ca/asc/eng/resources/publications/default.asp#parliament

To learn more about Generic Technological Activities Supporting Earth Observation, Space Science and Exploration, and Satellite Communications, go to:
http://www.space.gc.ca/asc/eng/industry/technology.asp

To learn more about the David Florida Laboratory, go to:
http://www.space.gc.ca/asc/eng/dfl/default.asp

Space Awareness and Learning


Strategic Outcome
Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.
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Space Mission Development SC (1 Program)
Space Mission Development GTA (1 Program)
Learning (1 Program)
Space Mission Operations EO (1 Program)
Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: Further public understanding and engagement with regards to space-related issues, ultimately leading to improving the scientific literacy of Canadians.

Space Awareness and Learning

Strategic Outcome
Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.
Program Activities
Space Based Earth Observation (EO)
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Space Mission Operations GTA (0 Program)
Program Areas
Internal Services

Program Activity Priority: Further public understanding and engagement with regards to space-related issues, ultimately leading to improving the scientific literacy of Canadians.

SPACE AWARENESS AND LEARNING PROGRAM ACTIVITY PERFORMANCE MEASUREMENT	
Expected Result #1	**Performance Indicator**
Targeted level of awareness of Canadians towards space is reached.	1. Survey results obtained every 3 years.
Planning and Reporting Continuity: RPP 2007-2008: http://www.space.gc.ca/asc/eng/resources/publications/rpp-2007.asp#2.5 DPR 2006-2007: http://www.space.gc.ca/asc/eng/resources/publications/pr-2007.asp#2.6	

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	7.9	8.9	8.8
HUMAN (FTEs)	29.0	29.0	29.0

This Program Activity is divided into two Sub-Activities: Awareness and Learning.

AWARENESS

Objective: Increase public awareness and understanding of how space affects and improves the quality of life.

Expected Result #1	Performance Indicator
Target audience is reached through outreach activities.	1. Number of initiatives according to targeted audiences.

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	5.1	5.9	5.9
HUMAN (FTEs)	24.0	24.0	24.0

Main Expected Accomplishments:

The major communications activities will focus on the following:

- Awareness campaign related to the launch of Dextre, the final component and contribution of Canada's advanced space robotics suite to the ISS, a two-armed dexterous manipulator that will enhance construction and maintenance of the International Space Station.
- Celebration of the 10th anniversary of the International Space Station; continuing promotion of Canada's key role as a member and contribution of critical scientific and technological expertise, and suite of space robotics that is building and maintaining the Space Station.

- Promotion of the successful commissioning of Canada's most advanced Earth Observation imaging satellite, RADARSAT-2. As RADARSAT-2 is fully tested and declared operational, it will begin production of precise imaging for Government and commercial clients.
- Awareness campaign related to Mars landing of NASA's Phoenix Mars Rover with a Canadian science instrument and weather station aboard.

LEARNING

Objective: Direct a sustained multi-dimensional and inter-active learning program to build knowledge and enhance interest in space science and technology.

Expected Result #1	Performance Indicators
Canadian educators and students further their learning related to science and technology through space theme.	1. Number of educators reached through professional development initiatives. 2. Number of students reached through learning activities.

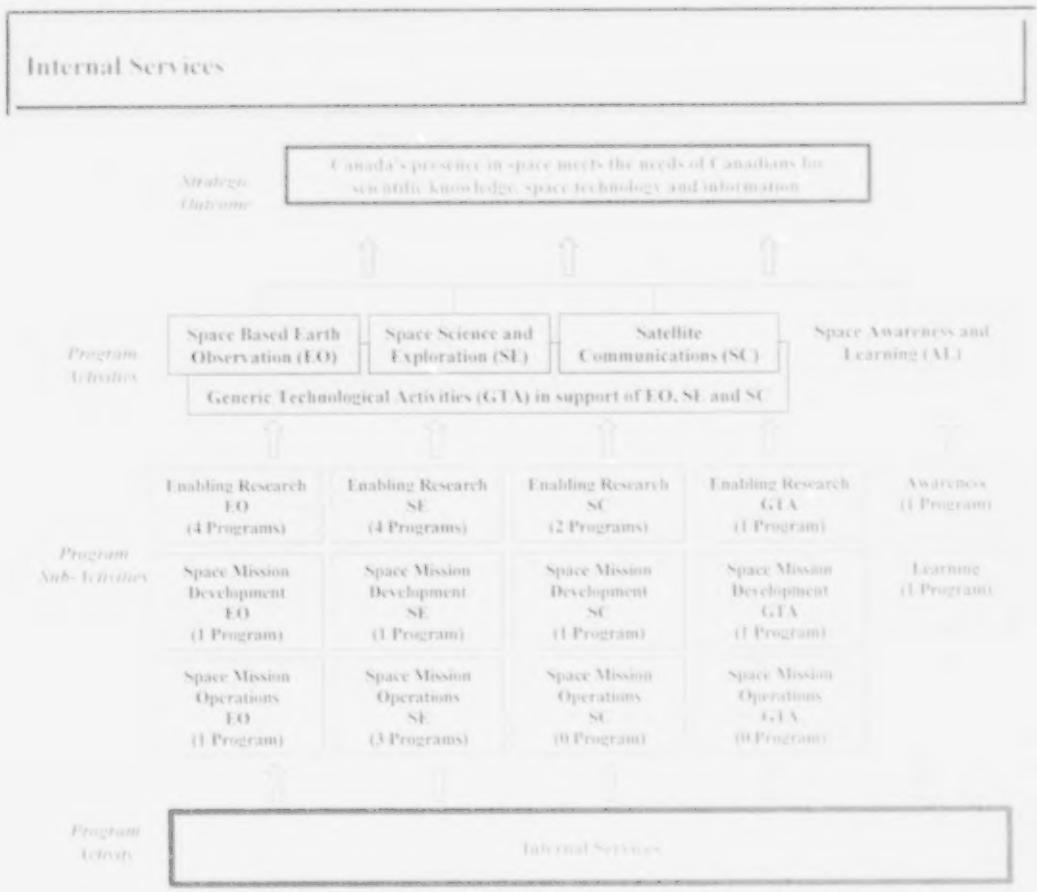
RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	2.8	3.0	3.0
HUMAN (FTEs)	5.0	5.0	5.0

Main Expected Accomplishments:

- Professional development workshops and teaching initiatives such as satellite enabled or web-based assisted tele-learning opportunities for educators.
- Partnered initiatives with schools, youth organisations and other institutions to expand student and educator access to the space science and technology community and space-learning materials.
- Targeted grants, contribution and sponsorship programs in partnership with other federal departments and agencies to support awareness, research, development and training in space science and technology.

To learn more about Space Awareness and Learning Program Activity, go to:
http://www.space.gc.ca/asc/eng/resources/publications/default.asp - parliament

To learn more about Space Awareness and Learning, go to:
http://www.space.gc.ca/asc/eng/media/default.asp; and,
http://www.space.gc.ca/asc/eng/educators/default.asp


Internal Services
Strategic Outcome
Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information
Program Activities
Space Based Earth Observation (EO)
Space Science and Exploration (SE)
Satellite Communications (SC)
Space Awareness and Learning (AL)
Generic Technological Activities (GTA) in support of EO, SE and SC
Program Sub-Activities
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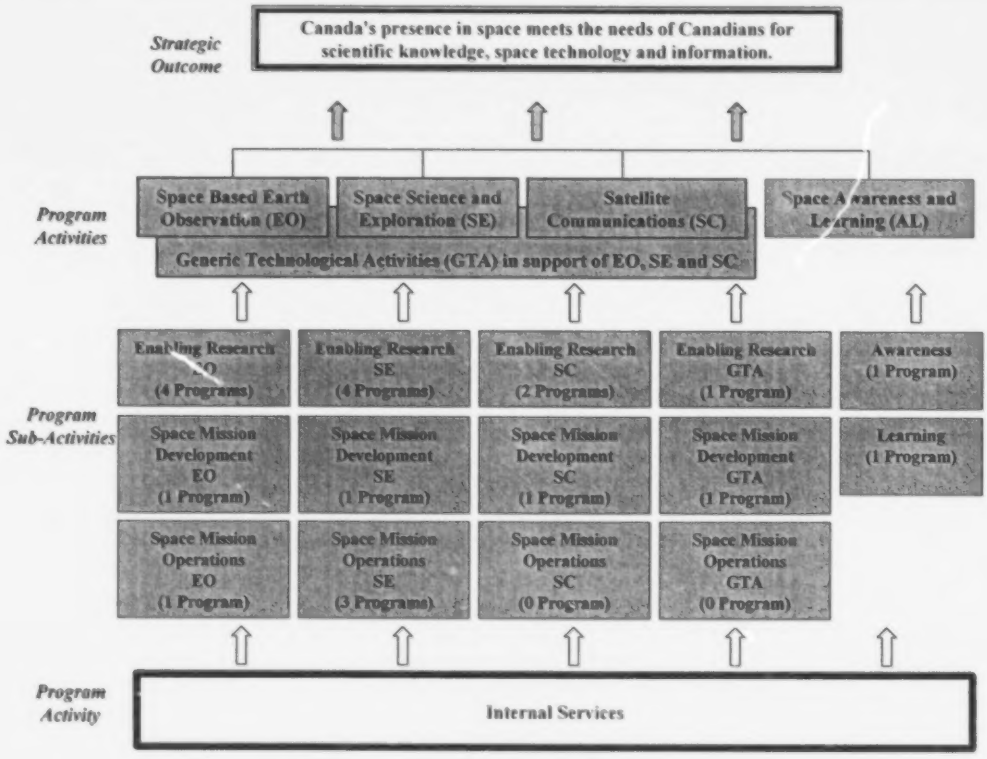
Enabling Research SE (4 Programs)
Enabling Research SC (2 Programs)
Enabling Research GTA (1 Program)
Awareness (1 Program)
Space Mission Development EO (1 Program)
Space Mission Development SE (1 Program)
Space Mission Development SC (1 Program)
Space Mission Development GTA (1 Program)
Learning (1 Program)
Space Mission Operations EO (1 Program)
Space Mission Operations SE (3 Programs)
Space Mission Operations SC (0 Program)
Space Mission Operations GTA (0 Program)
Program Activity
Internal Services

Program Activity Priority: To implement the government's commitment to modern public service management in accordance with the Management Accountability Frameworks (MAF) expectations.

Internal Services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INTERNAL SERVICES PROGRAM ACTIVITY PERFORMANCE MEASUREMENT	
Expected Result #1	**Performance Indicator**
Internal Services provide an added value to CSA managers in the performance of their duties.	Services provided meet standards set under Government-wide and CSA policies as well as MAF expectations.
Expected Result #2	**Performance Indicators**
The four highest priority risks identified in the CSA corporate risk profile are addressed and mitigated:	Management and mitigation actions are implemented:
1. Values and Ethics: Increase the capacity of the CSA to instill public service values, to develop a working environment free of harassment, and promoting respect for individuals, integrity and honesty.	**1.** Phase 2 of the CSA Public Service Values and Ethics program is implemented.
2. Workforce Competencies: Increase the capacity of CSA to maintain a qualified workforce of public servants to deliver CSA's mandate within the government legislative frameworks, policies and rules.	**2.1.** The key leadership competency profile is integrated in human resources management strategies and activities. (Target: Competency profile is used for the hiring, evaluation and development of CSA managers.) **2.2.** The majority of CSA managers are recognized as being qualified for increased delegation of authority. (Target: Full hiring delegated authority is granted by the Public Service Commission by September 2008.)
3. Function/Process Integration: Increase the capacity of CSA to align its strategies, planning priorities, funding levels, operations and capacity to deliver and to obtain clear understanding and buy-in from managers and staff at all levels.	**3.1.** The corporate Work Planning information system (eWP) is fully implemented and functional for all sectors for the planning of 2008-2009 and monitoring of 2007-2008. **3.2.** Completed development of a Long-term Investment Plan. (Target: The Plan is approved by CSA Executive Committee)
Planning and Reporting Continuity: RPP 2007-2008: http://www.space.gc.ca/asc/eng/resources/publications/rpp-2007.asp - 2.6 DPR 2006-2007: http://www.espace.gc.ca/asc/eng/resources/publications/pr-2007.asp#2.7	

RESOURCES	2008-2009	2009-2010	2010-2011
FINANCIAL ($ in millions)	40.6	39.9	39.9
HUMAN (FTEs)	270.1	269.3	270.1

Main Expected Accomplishments:

The Internal Services Program Activity covers the following sub-activities: Management and Oversight, Human Resources Management, Financial Management, Supply Chain Management, Facilities and Asset Management, Information Management, Information Technology, Public Affairs and Communications, Program Evaluation, Internal Audit, and Legal Services. As part of their current activities, Internal Services will carry out key activities and service provision improvements such as:

Management and Oversight

- Finalize the measurement strategy for the full deployment of the Performance Measurement Framework (PMF).
- Ensure that corporate priority review exercise is completed in time for the 2009-2010 ARLU exercise.

Evaluation and Internal Audit Services

- The following evaluations will be completed in 2008-2009:
  - RADARSAT-1 and RADARSAT-2 Major Crown Projects;
  - CASSIOPE Mission Grants & Contributions Program; and,
  - Canada/ESA Cooperation Agreement.
- Create an independent Departmental Audit Committee made of a majority of members from outside the federal public service.
- Develop of a risk-based multi-year internal audit plan.

Finance Services

- Implement internal control procedures in order to assure managers that all payments are compliant with current financial policies.
- Develop a forecast module in the expenditure management system in order to optimize the spending of allocated funds.

Human Resources

- The Integrated Corporate Human Resources Plan developed in 2007-2008 will be implemented by all CSA sectors.
- Establish the profile of essential competencies by which full delegation authority will be granted to managers and make sure that a majority of managers are qualified.

SECTION 3: SUPPLEMENTARY INFORMATION

3.1 DEPARTMENTAL LINKS TO THE GOVERNMENT OF CANADA OUTCOME AREAS

2008–2009							
Budgetary							
($ in millions)	**Operating**	**Capital**	**Grants**	**Contributions and Other Transfer Payments**	**Total Main Estimates**	**Adjustments (Planned Spending not in Main Estimates)**	**Total Planned Spending**
Strategic Outcome: *Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.*							
Earth Observation (EO)	51.1	83.8	0.5	9.9	**145.2**	4.4	**149.6**
Space Science and Exploration (SE)	93.4	28.6	1.3	6.5	**129.8**	-	**129.8**
Satellite Communications (SC)	8.1	3.4	0.0	18.5	**30.0**	-	**30.0**
Generic Technological Activities in support of EO, SE and SC (GSA)	43.5	2.3	0.4	8.1	**54.3**	-	**54.3**
Awareness and Learning (AL)	7.4	0.1	1.1	0.3	**8.9**	-	**8.9**
Total	**203.7**	**118.1**	**3.2**	**43.2**	**368.2**	**4.4**	**372.6**

- The Program Activity Space Based Earth Observation (EO) contributes to the Government of Canada's "A Clean and Healthy Environment" outcome.
- The Program Activity Space Science and Exploration (SE) contributes to the Government of Canada's "A Strong and Mutually Beneficial North American Partnership" outcome.
- The Program Activity Satellite Communications (SC) contributes to the Government of Canada's " Safe and Secure Communities " outcome.
- The Program Activity Generic Technological Activities in support of EO, SE and SC (GSA) contributes to Government of Canada's "An Innovative and Knowledge-Based Economy" outcome.
- Space Awareness and Learning (AL) contributes to the Government of Canada's " A Vibrant Canadian Culture and Heritage" outcome.

CANADIAN SPACE AGENCY CONTRIBUTIONS TO GOVERNMENT OF CANADA OUTCOMES

GOVERNMENT OF CANADA OUTCOMES		
Economy	**Social**	**International**
1. ***An Innovative and Knowledge-Based Economy***	1. ***Safe and Secure Communities***	1. ***A Strong and Mutually Beneficial North American Partnership***
2. ***A Clean and Healthy Environment***	2. ***A Vibrant Canadian Culture and Heritage***	2. A Safe and Secure World Through International Co-operation
3. Strong Economic Growth	3. Healthy Canadians	3. A Prosperous Canada Through Global Commerce
4. Income Security and Employment for Canadians		

CSA Strategic Outcome

Canada's presence in space meets the needs of Canadians for scientific knowledge, space technology and information.

The Canadian Space Agency contributes to the ten Government of Canada Outcomes listed above out of the thirteen measured in the annual *Canada's Performance Report* to Parliament. However, in order to create an even match between the CSA's Program Activities and Government of Canada Outcomes, only the five outcomes highlighted are recorded in the *Canada's Performance Report*. In doing so, the CSA's spending contributes to three key policy areas: Economic Affairs, Social Affairs and International Affairs.

CSA Contributions to Canada Economic Outcomes

The CSA strategic outcome contributes to the development of Canada's economy as measured against the following outcomes outlined in *Canada's Performance* report:

- an innovative and knowledge-based economy;
- a clean and healthy environment;
- strong economic growth; and,
- an income security and employment for Canadians.

The space industry contributes to Canada's economic well-being and helps achieve a higher standard of living and quality of life for all Canadians.

Through its R&D investments and the resulting transfers of applications to the private and public sectors, the CSA's programs and activities attract highly skilled labour that contributes to Canada's knowledge-based economy; helps enhance the Canadian space industry's competitiveness by encouraging dynamic trade relationships with other nations; and increases Canada's ability to compete in the global marketplace.

Earth Observation missions drive many of the changes that are improving our quality of life by helping our government deliver on priorities such as protection of the environment, sustainable development, management of natural resources, understanding climate change, monitoring air quality, and providing support for disaster management.

Satellite communications missions are a key element in linking all Canadians in a communication network including remote and northern communities.

CSA Contributions to Canada Social Outcomes

The CSA strategic outcome contributes to Canada's social foundations as measured against the following outcomes outlined in *Canada's Performance* report:

- safe and secure communities;
- a vibrant Canadian culture and heritage; and,
- healthy Canadians.

Earth Observation, communication and navigation satellites drive many of the changes that improve the quality of life of Canadians by helping our government on managing issues relating to the environment as well as to the safety and security of our population. It contributes to the monitoring of parameters relating to the maintenance of a healthy environment over Canadian territory, and supports disaster management in situations such as floods, forest fires and earthquakes. These satellites also provide essential communication tools to support law and order, enforcement interventions and enhance search and rescue capabilities.

In today's context of environmental change and resource depletion, fundamental and applied research in physical and life sciences and in space exploration is predicted to bring about socio-economic benefits in ways that will greatly improve how we live, prosper, and evolve on our planet. For instance, the development of a surface mobility capability on the Moon will require the use of solar-powered electrical propulsion vehicles, which, in turn, could well lead the way toward spin-off commercialisation of green technologies for the transport vehicles of the future.

Space infrastructure allows access and dissemination of timely health, cultural, security and safety related information to all Canadians no matter where they live in Canada. Satellite communication is essential to provide Canadians living in remote areas with timely access to expert knowledge and expertise related to health and education through a range of non-commercial services including: e-government, e-learning, tele-justice, tele-education, as well as tele-medicine in areas such as tele-psychiatry, tele-radiology, tele-surgery, and tele-consultations.

CSA Contributions to Canada International Outcomes

The CSA strategic outcome contributes to establishing Canada's international presence as measured against the following outcomes outlined in *Canada's Performance* report:

- a strong and mutually beneficial North American partnership;
- a safe and secure world through international co-operation; and,
- a prosperous Canada through global commerce.

Space is an essential and strategic tool for Canada to meet its social, economic and foreign policy objectives. Through the development of its space infrastructure, not only is Canada meeting its specific national needs, it is also paving the road for Canada to play a tangible and visible role in responding to issues of interest to the international community.

With its space exploration, science and technology endeavours, which often involve international partners, the CSA plays an influential role in building strong and mutually beneficial partnerships with an increasing number of spacefaring countries. In striving to become one of the most advanced, connected and innovative nations in the world, Canada offers and shares tremendous opportunities for the prosperity of global commerce and the safety of the global community through the peaceful use of space.

3.2 FINANCIAL TABLES

Annexes

The annexes are linked to the Report on Plans and Priorities 2008-2009 posted on the Canadian Space Agency Web site at:
http://www.space.gc.ca/asc/eng/resources/publications/default.asp - parliament

Annexe 1: Details on Transfer Payments Program (TPPs)

Annexe 2: Internal Audits or Evaluations

Annexe 3: Services Received without Charge

Annexe 4: Sources of Respendable and Non-Respendable Revenue

Annexe 5: Status Report on Major Crown Projects (MCPs)

Annexe 6: Summary of Capital Spending by Program Activity

Annexe 7: User Fees

The **Alpha Particle X-ray Spectrometer** (APXS) is an instrument for the Mars Science Laboratory to be launched by NASA in 2009. The Canadian contribution will help scientists to determine the chemical composition of various soil, dust and rock samples on the planet.

The **Anik F2,** Telesat Canada's innovative, high-speed **Ka-band,** is one of the largest, most powerful communications satellites ever built. It is designed to support and enhance North American voice, data, and broadcast services. Through its support of Anik F2, the Government of Canada has secured a Government Capacity Credit access worth $50 million over 11 years to support the connectivity for remote and underserved northern rural communities.

CASSIOPE is a small hybrid satellite scheduled for launch in 2008. The satellite will include the telecommunication instrument **Cascade**, which will provide the very first digital broadband courier service for commercial use, and the scientific payload **e-POP** (enhanced polar outflow probe), which will be used to study the ionosphere.

The **eOSTEO** (Osteoporosis Experiments in Orbit) is a study on bone loss in space made of the three Canadian experiments to study how bone cells in microgravity react to signals that increase and decrease bone formation; whether microgravity compromises bone cell architecture; and whether a hormone that promotes bone creation can, in weightless conditions, prevent the death of cells that build bone.

The **Herschel** Space Observatory, scheduled for launch in 2008, will help scientists determine how early galaxies formed and evolved. The observatory has three instruments and Canada is contributing to two of them: the Heterodyne Instrument for the Far Infrared (HIFI) and the Spectral and Photometric Imaging Receiver (SPIRE). **Planck** is a European Space Agency medium-sized mission that will be launched with the Herschel Space Observatory. It is a survey instrument that will map the entire sky. Canada is involved mainly in the development of Quick Look Analysis software and Real Time Analysis software for scientific checkout of the data at early stages.

The **International Space Station** (ISS) is the most ambitious engineering project ever undertaken by humanity. Canada is contributing the **Mobile Servicing System** (MSS), a space robotics system astronauts use to assemble, maintain the ISS. The MSS consists of three main elements: the Space Station Remote Manipulator System (SSRMS), known as Canadarm2, the Mobile Base System (MBS), and the Special Purpose Dexterous Manipulator (SPDM), known as Dextre.

The **James Webb** Space Telescope (JWST) is a joint mission of NASA, ESA, and the CSA. This major facility-class space observatory will be launched in 2013 and is a successor to the Hubble Space Telescope. JWST will be used to observe targets that range from objects within our Solar System to the most remote galaxies, which are seen during their formation in the early universe.

The **NEOSSat** is a joint CSA-DND mission. It is a combination of the Near Earth Space Surveillance (NESS) and the High Earth Orbit Surveillance (HEOS) projects. It will be used to observe the inner portion of the solar system to discover, track and study asteroids and comets, and will also be used to track satellites in high-Earth orbit to update the orbit parameters of known satellites flying over the Canadian territory. NEOSSat is scheduled to launch in 2009.

The **Polar Communications and Weather (PCW)** mission is to put a constellation of satellites in highly elliptical orbit over the North Pole to provide communication services and monitor weather in the Arctic region. The CSA will complete the assessment of the requirements of the Canadian government users for a polar satellite system as part of a joint study with DND and Environment Canada.

The **Phoenix** Mars Lander will be the first mission to explore a polar region of Mars at ground level. Phoenix will land near Mars's northern polar cap on May 25, 2008 and will then spend 90 days probing Mars's soil and atmosphere to determine if the environment could be hospitable to life. Canada's contribution to Phoenix is a **meteorological station** that will record the daily weather using temperature, wind and pressure sensors, as well as a light detection and ranging instrument

RADARSAT-1 is a sophisticated Earth observation satellite developed by Canada. Launched in November 1995, it is equipped with a powerful synthetic aperture radar (SAR) instrument that acquires images of the Earth day or night, in all weather and through cloud cover, smokes and hazes.

RADARSAT-2 was launched on 14 December 2007. It incorporates new capabilities that ensure Canada's continued leadership in the global marketplace for radar image data by leveraging the knowledge and experience gained through the long and successful RADARSAT-1 mission while taking advantage of new technologies.

SWIFT is the main instrument on the CSA's Chinook satellite scheduled for launch in late 2010. It will provide the first three-dimensional maps of winds around the globe, 20 to 55 km above the surface in the stratosphere.